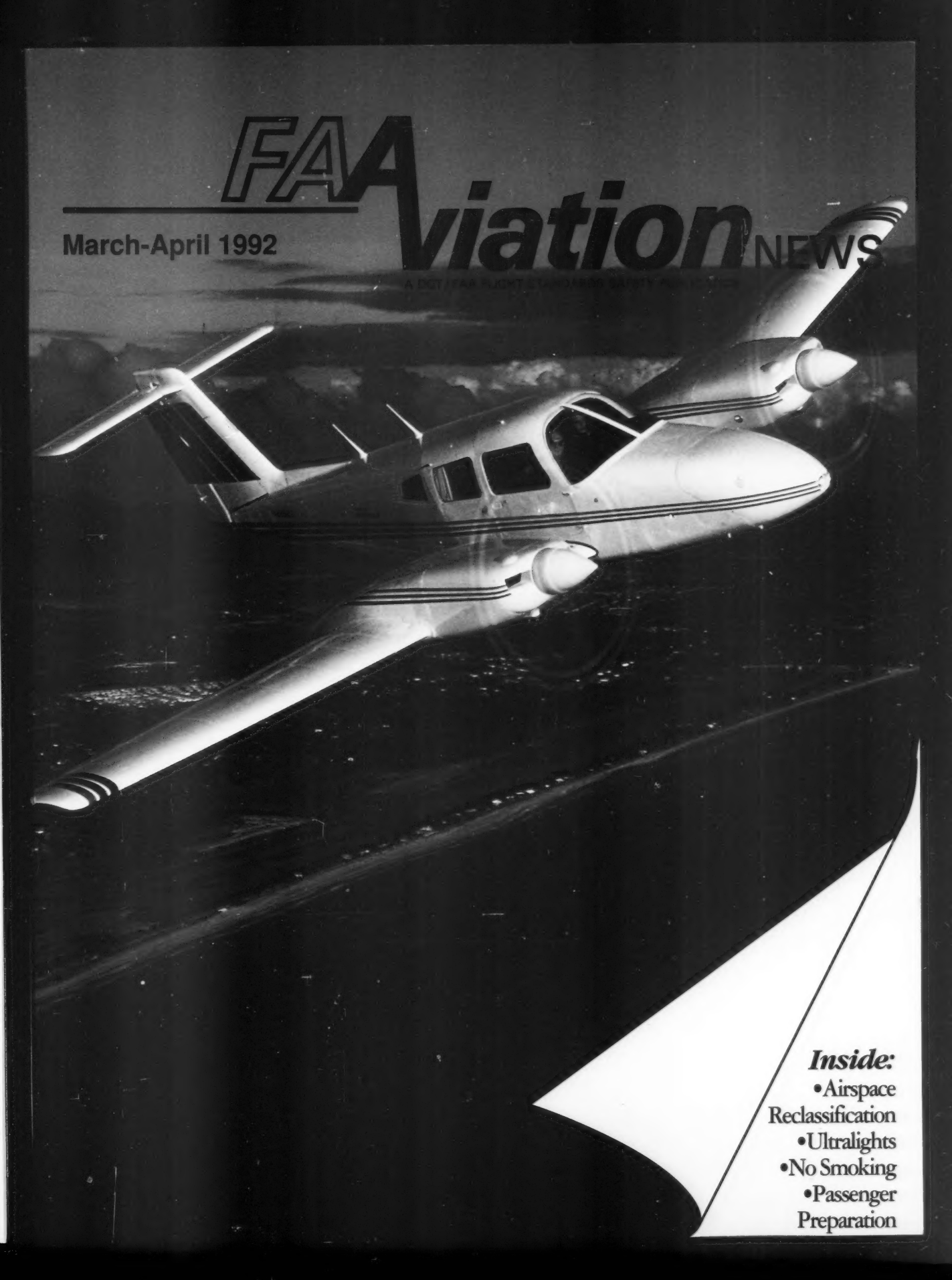
FAA Aviation NEWS
March-April 1992
Inside:
•Airspace Reclassification
•Ultralights
•No Smoking
•Passenger Preparation

U.S. Department of Transportation

Federal Aviation Administration

FAA Aviation NEWS

March/April 1992

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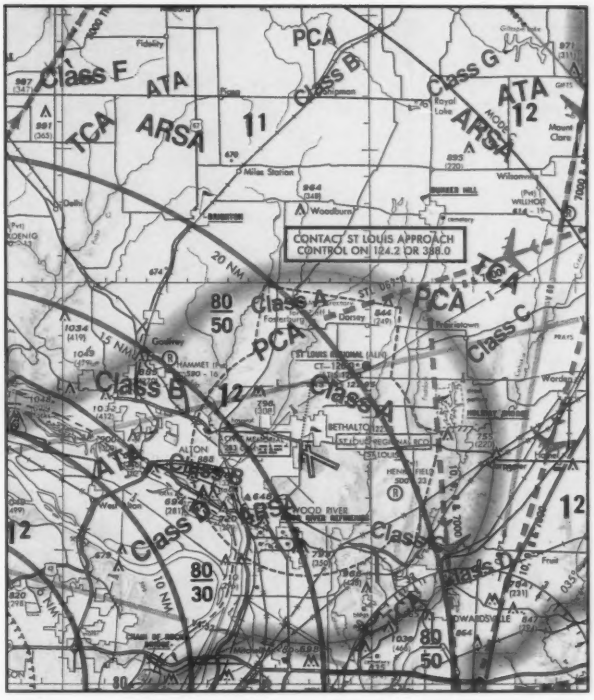
THE RESULTS ARE IN! Remember a few issues ago (November/December 1991, page 17) we printed an article in larger type and asked for your input on whether that was the way the whole magazine should go? The results were overwhelmingly in favor of larger type—provided that it did not reduce the amount of copy in the magazine. So, here is what we have done: Starting with this issue, larger type and more pages. We hope that meets the bill.

On the Cover:
Don't leave the country to escape airspace reclassification! See how FAA will bring its airspace into international nomenclature on p. 1. Photo of Piper Seminole *courtesy of Piper Aircraft.*

the ABC's of Airspace RECLASSIFICATION

Acronyms are out, the Alphabet is in.



by Louise Oertly, Associate Editor

You are no doubt thinking, "I just got used to the revised Part 91 of the Federal Aviation Regulations and now the FAA throws this at me!" Things are not as bad as you think. Yes, the new rule establishes six classes of airspace, each identified by a single letter of the alphabet, and they replace such familiar acronyms as TCA, ARSA, and ATA. However, this reclassification is meant to enhance safety and simplify airspace, not make it more complicated.

On September 16, 1993, almost two years away, the rule will go into effect establishing six class designations (A, B, C, D, E, and G) for U.S. airspace. The objectives of this airspace reclassification are to:

- simplify the airspace designations
- increase standardization of equipment and pilot requirements for operations in various classes of airspace
- promote pilot understanding of air traffic control services available
- achieve international commonality and satisfy our responsibilities as a member state of ICAO (International Civil Aviation Organization)

This simplification of the airspace will make it easier for pilots to understand the requirements needed to operate in U.S. airspace. In fact, pilots flying IFR will experience very little impact, whereas other pilots will find minimal changes to the operating rules. The chart in Figure 1 gives a summary of the new airspace classifications by describing the current airspace equivalent, the appropriate pilot certificate requirements, the visual flight rules (VFR) visibility and distance from cloud rules, and the air traffic services offered in each class of airspace.

There are few actual changes to the Federal Aviation Regulations (FAR) as a result of the reclassification. One important change to FAR Part 71 eliminates the current difficulty of which requirements apply when several types of airspace are designated around an airport by simply correlating the class of controlled airspace to the airspace surrounding the area. Another change permits VFR pilots to remain clear of clouds while operating in Class B (formerly TCA) airspace. Most of the other changes are a matter of inserting the new alphabetic class of airspace in the place of the old acronyms. In FAR Part 1, general definitions for Special VFR Conditions and Special VFR Operations are added, Controlled Airspace is revised, and Airport Traffic Area is deleted. The only airspace not renamed by the reclassification is special use airspace.

There is one point that needs some clarification. In 1978 the International Civil Aviation Organization (ICAO) saw the need to study the diverse range of regulations and airspace

NEW DEFINITIONS TO APPEAR IN FAR PART 1

Controlled airspace means an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

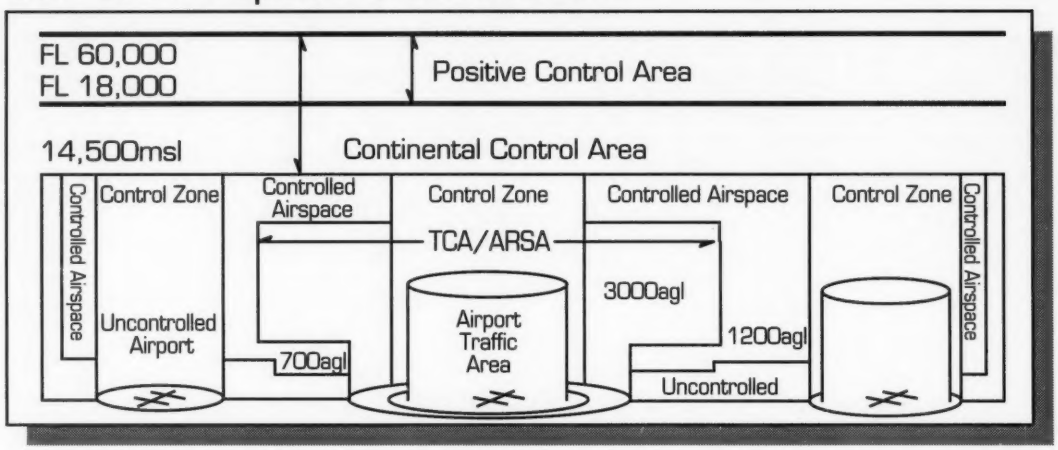
Note—Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

Special VFR conditions mean meteorological conditions that are less than those required for basic VFR flight in controlled airspace and in which some aircraft are permitted flight under visual flight rules.

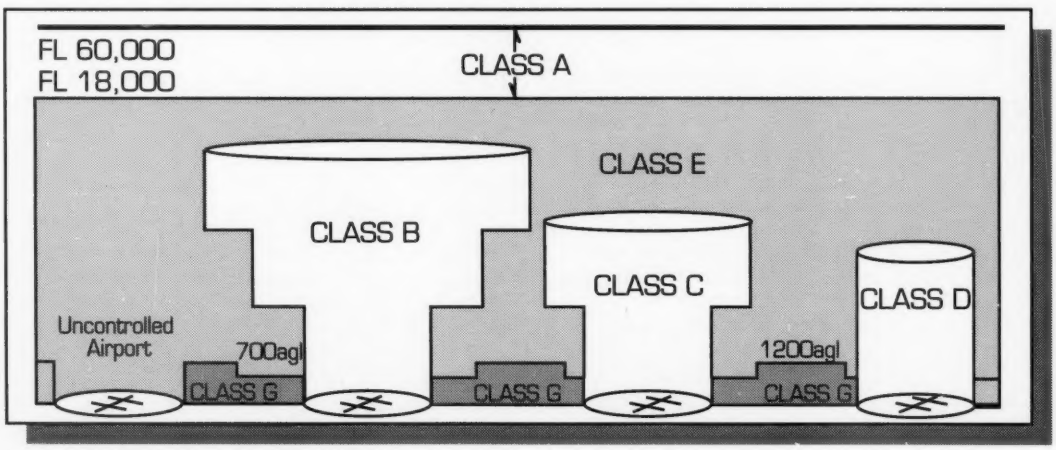
Special VFR operations means aircraft operating in accordance with clearances within controlled airspace in meteorological conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

New FAA Airspace Classifications

Current Airspace Classification



New Airspace Classification



*msl - above mean sea level
agl - above ground level

classifications in use by member states and develop an international standard. In North America alone a flight from Iowa through Canada to Alaska can be fraught with many legal dangers if a pilot assumed that U.S. and Canadian regulations and airspace classification are the same. They are not. (See "Flying to Alaska" in the January/February 1992 *FAA Aviation News* for more information.) If that is the case on this continent, just think what flying across Europe would be like.

Despite what many people think, the FAA did not arbitrarily adopt the ICAO airspace classification. Along with such international aviation associations as IAOPA, IFALPA, FAI, IATA, the U.S. as an ICAO member has been among the leaders from the beginning (1978) to develop a simplified airspace system. Parallelling this international effort was our own National Airspace Review (NAR). The FAA published the initial NAR recommendations in 1982 with the subsequent Notice of Proposed Rulemaking No. 89-28 appearing in the *Federal Register* in October 1989 proposing the airspace reclassification. It was not until the following March (1990) that ICAO formally adopted Amendment 33 to Annex 11, Air Traffic Services, which established seven international classes of airspace (A through G). Barely a month after ICAO's November 14, 1991 effective date, FAA's final rule appeared in the December 17 *Federal Register* with an effective date of September 16, 1993. (For a copy of the Airspace Reclassification, FAA Order 7400.9, contact Document Inspection Facility, APA-220, Washington, DC 20591; telephone 202-267-3484.)

Over the next two years a dual airspace system will be used to transition pilots into the new system. During this time, the FAA will educate pilots on the reclassification by means of publications, videotapes, and pilot meetings. Another possibility being discussed is an advisory circular that will be sent to every registered pilot.

As with all changes, it will take a while for the aviation community to transition to the new airspace classification, but in the long run a less complicated airspace will promote safety in the sky. ■

Editor's Note: The FAA Aviation News *will carry another article explaining the symbol modifications which will appear on aeronautical, planning, and route charts. As these modifications will be incorporated during the regular updating and printing of charts, this article will coincide with the October 1992 appearance of the first set of revised charts.*

Figure 1—Airspace Reclassification Summary

Airspace Features	Class A	Class B	Class C	Class D	Class E	Class G
Current Airspace Equivalent	Positive Control Area (PCA)	Terminal Control Area (TCA)	Airport Radar Service Area (ARSA)	Airport Traffic Area (ATA) and and Control Zone (CZ)	General Controlled Airspace	Uncontrolled Airspace
Operations Permitted	IFR	IFR and VFR	IFR and VFR	IFR and VFR	IFR and VFR	IFR and VFR
Entry Prerequisites	ATC clearance	ATC clearance	ATC clearance for IFR. Radio contact for all.	ATC clearance for IFR. Radio contact for all.	ATC clearance for IFR. Radio contact for all IFR.	None
Minimum Pilot Qualifications	Instrument rating	Private or student certificate	Student certificate	Student certificate	Student certificate	Student certificate
Two-way Radio Communications	Yes	Yes	Yes	Yes	Yes for IFR	No
VFR Minimum Visibility	N/A	3 statute miles	3 statute miles	3 statute miles	*3 statute miles	**1 statute mile
VFR Minimum Distance from Clouds	N/A	Clear of clouds	500' below, 1,000' above, and 2,000' horizontal	500' below, 1,000' above, and 2,000' horizontal	*500' below, 1,000' above, and 2,000' horizontal	**500' below, 1,000' above, and 2,000' horizontal
Aircraft Separation	All	All	IFR, SVFR, and runway ops	IFR, SVFR, and runway ops	IFR and SVFR	None
Conflict Resolution	N/A	N/A	Between IFR and VFR ops	No	No	No
Traffic Advisories	N/A	N/A	Yes	Workload permitting	Workload permitting	Workload permitting
Safety Advisories	Yes	Yes	Yes	Yes	Yes	Yes

* Different visibility minima and distance cloud requirements exist for operations above 10,000' MSL

**Different visibility minima and distance from cloud requirements exist for night operations, operations above 10,000' MSL, and operations below 1,200' AGL

Ultralights

Grassroots Flying Lives on Through the Efforts of Dedicated Professionals

Photo Courtesy of USUA

Is it an airplane or an ultralight? In this case it is an ultralight registered as an experimental aircraft.

by Dean Chamberlain, Associate Editor

This article on the ultralight industry is part of our continuing series on the working relationship between the aviation industry and the FAA. In a sense, the ultralight industry could be called the "Cinderella Story of Aviation." Depending upon whom you talk to, some consider it the aviation industry's unwanted stepchild; others think it is general aviation's salvation. Only time will tell if there is a fairy godmother waiting in the wings. —*Editor*

Today's ultralight industry evolved from the simple, foot-launched hang gliders of the 1960's and 1970's into a sophisticated industry that provides not only a variety of powered ultralight vehicles but also the more traditional hang gliders. As it has matured over the last three decades, the industry now supports the sport and recreational use of ultralight vehicles through manufacturing, pilot training, air park development, and also through various user groups that support the needs of their members. Three of the major groups in the industry, the Experimental Aircraft Association (EAA), the United States Ultralight Association (USUA), and the United States Hang Gliding Association (USHGA), not only provide an important stabilizing role in the largely self-regulated industry, they also play an important role in the regulatory process by representing the varied industry interests before the FAA and other local and international governmental organizations.

For those of you who have not kept up with the changes in the ultralight industry, the old saying, "If it looks like a duck, walks like a duck, and quacks like a duck, it probably is a duck," *does not* hold true for powered ultralights any more. Today, some ultralights look like aircraft, fly like aircraft, and sound like aircraft, but they are not aircraft. Then some aircraft look like ultralight vehicles, fly like ultralight vehicles, and sound like ultralight vehicles, but they are not ultralight vehicles.

Since appearances can be deceiving, how do you tell a powered ultralight vehicle from an aircraft? One way is to look for an N-number. Aircraft have registration numbers; ultralights do not. The only sure way is to determine if the vehicle meets the FAR Part 103 definition for one of the two primary types of ultralight vehicles: powered and unpowered. Unpowered ultralights are your typical hang gliders. The identity problem involves powered ultralights, and that problem is compounded by the fact that just because a "device" meets the definitions of FAR Part 103 does not mean it has to be an ultralight vehicle. Some owners certificate their "ultralight vehicles" as amateur-built experimental aircraft and operate under FAR Part 91 with all of its operating privileges and requirements.

The fact that two vehicles of the same model can operate under FAR Part 103 (as an ultralight vehicle) or under FAR Part 91 (as a registered aircraft) has caused concerns. Some pilots and airport operators resent those "powered go-carts" flying in "their" airspace. What they may not realize is that "powered go-cart" may be a certificated aircraft operated under FAR Part 91 by an FAA-certificated pilot. To better understand why some "vehicles" are certificated as aircraft and flown by certificated pilots and others remain as ultralight vehicles flown by either certificated pilots or ultralight vehicle operators, we need to review the history of the industry.

History of Ultralights

Ultralight vehicles trace their roots to hang gliding of the 1960's, but hang gliding itself goes back more than a century. According to an article in the first issue of the Federation Aeronautique Internationale's magazine *Air Sports International* published in 1991, Germany's Otto Lilienthal's hang glider flights in 1891 were considered by many to be the first human hang glider flights. Although he later died as a result of a hang gliding accident in 1896, his accomplishments and ideas were well known by the Wright

Brothers who later experimented with and flew gliders during their own research on aircraft design and control. Their successful application of the lessons learned from their hang gliding experiments is well known in aviation history.

The modern era of hang gliders started in the 1960's when NASA's Dr. Francis M. Rogallo developed the Rogallo Wing, a triangular-shaped, synthetic-fabric airfoil supported by a simple, tubular, A-style frame made of light-weight aluminum. Soon after hang glider pilots in search of a few minutes of flight time could be seen running and jumping off hill tops and cliffs in their new light-weight, multicolored flying wings. Some locations, such as the cliffs overlooking the Pacific Ocean at Torrey Pines near San Diego, CA, enabled pilots to fly for long periods of time back and forth across the cliff's face on the uplifting winds from the Pacific. From the cliffs of California to the Outer Banks of North Carolina, the sport of hang gliding spread its colorful wings across the nation. The flood of color soon brought problems though. Since not every site had the ideal soaring conditions of a Torrey Pines or the Outer Banks, enterprising hang glider pilots started modifying their hang gliders by adding small gasoline engines and propellers.

At first, powered hang gliders looked like traditional hang gliders except they now had a long shaft with a small propeller at one end and a screaming, high-pitched, two-cycle-gas engine at the other. For a while, pilots still controlled their powered hang gliders by shifting their body weight to change the hang glider's center of gravity. Eventually some manufacturers started adding seats to some of their hang gliders, and body-shift directional control gave way to aerodynamic control. With the continued development of more powerful, aerodynamically-controlled hang gliders came a problem for both the FAA and industry.

A Question of Safety

As soon as the new, powered hang gliders and their offspring left the hill tops and cliffs and started powering their way into "real airplane" airspace, the question of what to do with them started to be asked. All of a sudden what had once been a "harmless" sport, save for the occasional pilot who exceeded his or her ability or airframe limits and had an accident, now had the potential to endanger "real" aircraft in the National Airspace System. In a few cases, airline pilots even reported near misses at enroute altitudes. The cry to limit powered hang gliders began to be heard across the nation.

Adding to the safety concerns were the thousands of powered hang gliders and "vehicles" manufactured during this period. Many were built by new, inexperienced manufacturers, some of whom did not survive in the business as long as their creations. And because no FAA airworthiness certification was needed, anyone could become a manufacturer. As a result, many companies entered the industry lacking the skill and money to build quality machines. Since there were no FAA certification requirements for either the new powered hang gliders or their aspiring pilots, a few of the new intrepid flyers were injured or killed teaching themselves to fly the new machines without ever realizing they were test pilots for some of the new designs.

A Regulatory Compromise

As a result of the unregulated atmosphere surrounding the sport of powered hang gliding at the time, some people, both within the developing industry and outside it, wanted the FAA to regulate this new form of flying like any other type of flight activity. The proponents for regulation wanted pilots to be certificated and hang gliders to meet FAA airworthiness standards. Other people said the sport could regulate itself. Still others said the cost of compliance would kill the sport. The industry and the rest of aviation could not agree on a solution.

In 1982 the FAA compromised with FAR Part 103, which defined the developing flying machines as ultralight vehicles, set maximum weight standards for both powered and unpowered vehicles, limited the number of occupants (one per vehicle), and set other limitations. The FAR also provided minimum operating rules for the vehicles. The FAA's concept was to define the growing industry as a low-cost, self-regulated flying sport that would not require a lot of FAA involvement or resources. The concept was similar to the kind of self-regulated sport flying done in some European countries.

As a result of the industry's growth and the new FAR, some within aviation thought the new powered ultralight vehicles would provide the low-cost access to flying that many in general aviation could no longer afford. They also thought powered ultralight operators would later move up to general aviation aircraft and fill the depleting ranks of private pilots. Proponents who thought ultralight aviation would be the salvation of general aviation had statistical reasons to be optimistic. From the late 1970's through

Photo by Dan Turner

Hang gliders soar over Yosemite National Park in California. As their popularity grew and their numbers increased, the industry became more organized to protect interests and ensure safety. Photo courtesy of USHGA.

Photo courtesy of Full Lotus Floats

Just as airplane pilots put floats on landplanes, it was inevitable that ultralight operators do the same. These two Canadian registered ultralight Maxair Drifter aircraft are float-equipped, and the Drifter in the foreground is an amphib.

the early 1980's, about 14,000 ultralight vehicles of all types were built. Others thought ultralight flying was only a fad, and it would soon disappear. The ultimate truth is probably somewhere between the two extremes. The fad may be over, but what is left is a dedicated group of people interested in the sport of flying ultralight vehicles—be they hang gliders or the latest form of fixed-wing, powered ultralight.

Today the same questions that were being asked in the early 1980's are still being asked: Should the industry be FAA regulated? Should pilots be FAA certificated? Should FAA airworthiness standards be developed for the vehicles? Should FAR Part 103 be eliminated, and should the *sport* of ultralight flying be regulated under FAR Part 91? And a continuous topic of debate is the question of how big can an ultralight be and still be an ultralight.

What difference does it matter how big an ultralight is, or for that matter, what difference does it make if something is an ultralight vehicle or an aircraft? The reason is the significant differences between the operating rules for aircraft and ultralight vehicles. The differences between FAR Parts 91 and 103 involve not only access to airspace, they also involve operating rules, airworthiness requirements, pilot certification, and medical requirements. Those differences also involve how the public refers to those who operate the type of equipment used and how we refer to the equipment used. Adding to the problem is the capability of today's ultralights.

Some powered ultralights approach and even match the airspeed of some of our older, traditional aircraft such as the J3 Cub. Some ultralights' engines even match the Cub's 65-hp powerplant. And because some of the new kit-aircraft are being built using the same technology as ultralight vehicles, the separation line between amateur-built aircraft and powered ultralight vehicles based on appearance alone is becoming very blurred at the top end of the ultralight vehicle market and the bottom of the experimental aircraft market. Only by knowing FAR Part 103 can you tell if a vehicle meets the legal definition of being an ultralight vehicle.

Provisions of FAR Part 103

FAR Part 103 states that an ultralight vehicle is one that:

(a) Is used or intended to be used for manned operation in the air by a single occupant;
(b) Is used or intended to be used for recreation or sport purposes only;
(c) Does not have any U.S. or foreign airworthiness certificate; and
(d) If unpowered, weighs less than 155 pounds; or
(e) If powered:
  (1) Weighs less than 254 pounds empty weight, excluding floats and safety devices which are intended for deployment in a potentially catastrophic situation;
  (2) Has a fuel capacity not exceeding 5 U.S. gallons;
  (3) Is not capable of more than 55 knots calibrated airspeed at full power in level flight; and
  (4) Has a power-off stall speed which does not exceed 24 knots calibrated airspeed.

Operational Considerations

Learning to fly an ultralight can be relatively inexpensive since there are no minimum number of flight hours involved and no FAA-written or flight tests involved. Adding to the low cost is the fact that the purchase and operating costs of ultralight vehicles are relatively low compared to general aviation aircraft. For example, a new powered ultralight can be purchased for about the cost of a new, small automobile. Another factor is ultralight operators can still buy new ultralight vehicles, which is something few pilots can do because very few small general aviation aircraft are being built today.

Then there is the question of access. With many general aviation airports being turned into shopping centers and housing developments, ultralight vehicles with their minimal runway requirements permit many pilots and flying clubs to operate the vehicles from farmers' fields and other off-airport areas. For those who like the water, there are models equipped with floats.

Finally, for many operators who cannot pass or do not want to apply for an FAA medical certificate, FAR Part 103 allows them to fly without one.

Self-Regulation

These are only some of the reasons why some ultralight operators like the freedom given them by the FAA under FAR Part 103. But that freedom is not unlimited. There are standards. As intended by the FAA when it issued FAR

Part 103, the FAR only sets the minimum standards for the largely self-regulated industry. The industry was and is expected to develop operator training and operating standards to meet its own needs. Some of that self-regulation is direct, such as that provided by industry membership groups. An example is the hang glider airworthiness standards developed by the United States Hang Glider Manufacturers Association (HGMA). Each new hang glider is extensively tested by the HGMA against these airworthiness standards for compliance as part of this self-imposed industry safety requirement.

Another part of the self-regulation process involves the marketplace which has been given the responsibility for developing powered ultralight vehicle airworthiness standards. The process is simple. Manufacturers, vehicles, and parts that fail to meet buyers' performance and safety expectations soon disappear from the marketplace. Over the years, many companies have failed to live up to the expectations of their customers. With the marketplace responsible for developing good, safe designs, all powered ultralight operators have the responsibility of being very knowledgeable about the products they buy and fly. One way for them to become knowledgeable consumers about the various products on the market is by joining one of the major membership groups in the industry such as the Experimental Aircraft Association (EAA, profiled in the May/June 1991 issue of *FAA Aviation News*), the United States Ultralight Association (USUA), or the United States Hang Gliding Association (USHGA).

Each of the volunteer membership groups works very closely with the FAA, and each is recognized by the FAA as being an important leader in the industry. Each group also actively participates in FAA rulemaking activities regarding the ultralight industry. In recognition of their leadership roles in the unpowered ultralight portion of the industry, the FAA has exempted EAA, USUA, and USHGA from certain provisions of FAR Part 103. Their exemptions permit each group to authorize ultralight operator training using two-place ultralight vehicles. The groups, using their own criteria, then authorize ultralight flight instructors to teach flight training in two-place ultralight vehicles. USUA authorizes flight instructors to teach ultralight flying, but EAA does not. USUA and EAA both have provisions to authorize FAA-certificated flight instructors to teach ultralight flying under their exemptions. USHGA issues tandem pilot and tandem instructor ratings through its self-regulated pilot proficiency program which authorizes two-place unpowered ultralight recreation and training flights.

Photo by Phil Masturzo

Fun Flight's Bruce Peters conducts ultralight vehicle flight training in a Beaver RX550. Ultralight industry support groups emphasize the need for some flight training in the interest of safety.

In response to industry demand, the FAA recognized the increased flight training safety benefits provided by the use of two-place vehicles by authorizing their use by the organizations. It must be emphasized that each ultralight operator or student is responsible for his or her own training and safety. USUA states in its *Ultralight Flight Instructor Practical Test Guide* that,

> "The United States Ultralight Association is a voluntary membership organization of the participants and supporters of ultralight aviation. USUA, as a private, non-regulatory organization which has no legal authority to regulate or control individuals or corporations, cannot be held liable for any flight operations that result in injury or death to any party. All references by USUA to self-regulation refer to each individual person regulating or being responsible for him or herself. . . . It is the responsibility of each student to ask whatever questions are necessary for him or her to have a thorough understanding of the actions and procedures that he or she must perform in order to make a safe flight. Each ultralight pilot has the responsibility to exercise certain practices and perform certain actions to maintain safety for himself or herself and for other people."

Although liability is a matter for the courts to decide, neither EAA, USUA, or USHGA assumes any liability or responsibility for training conducted under the exemptions given them by the FAA. Training programs such as those provided by each group only provide a means for each operator to develop and track his or her own individual training. (It should be noted that the use of two-place ultralights for any purpose other than training by either an EAA-, USUA-, or USHGA-approved instructor is prohibited unless authorized by the FAA.)

USUA, which is based in Mount Airy, MD, is a good example of the industry's self-regulation. This organization of about 4,500 members has developed an extensive ultralight operator training program for its members which is very similar to the pilot training requirements of FAR Part 61. USUA's program requires both

Photo by Dean Chamberlain

Ultralights were made for grass strips, and their short takeoff and landing distances do not require much space. Rather than prohibit ultralights from public-use airports, many airport operators have set aside "ultralight operating areas" for the sport's use.

aeronautical knowledge and flight experience of both its instructors and new ultralight pilots. USUA registers those who meet the requirements of its FAA-recognized airman program and ultralight vehicle owners in the National Ultralight Airman Registry.

John Ballantyne, USUA Director, said everyone interested in learning to fly an ultralight, particularly FAA-certificated airplane pilots, should get proper training. He said the light weight and slow speeds of an ultralight vehicle make flying them different from flying an airplane. USUA's emphasis on safety was repeated by Bruce Peters, President of Fun Flight, Inc. of Alexandria, VA, and a USUA certified flight instructor, when he said the light wing loading, high power, and high drag of ultralights require even ATP-rated pilots to get ultralight flight training. According to Peters, FAA-certificated pilots can become safe and proficient ultralight operators in about five to 10 hours of flight training. He also said that while non-FAA-certificated students require more training, they are easier to train. He said one of the reasons is they do not try to use "airplane techniques" to fly an ultralight.

Both men stress the importance of pilot knowledge and training when operating ultralights. Ultralight operator training and knowledge is one of the conditions of USUA membership and USUA's training programs. All USUA operators and instructors must know and agree to comply with not only all of USUA's rules, but they must know and agree to comply with FAR Part 103 as well. This voluntary USUA requirement is an example of the self-regulatory aspect of the ultralight industry and FAR Part 103.

Unpowered Ultralight Vehicle Programs

USHGA was the earliest to develop training programs modeled after FAR Part 61 for hang glider operators. USHGA's program is a voluntary condition of membership for its 8,000 members. As a division of the (United States) National Aeronautic Association (NAA), USHGA is the official sanctioning body for hang gliding record attempts and competition within the United States. One such record it sanctioned is the current hang glider cross-country distance record of more than 300 miles.

USHGA evolved with the sport of hang gliding. Like many other things in American life, hang gliding as we know it today started in California. There it flourished, and its popularity soon spread across the country. As hang gliding's popularity spread during the 1960's and 1970's, hang glider pilots, like other pilots, formed new groups as soon as two or more hang glider pilots got together.

One of those groups, the Southern California Hang Glider Association, which had evolved from a smaller group founded in 1971, became so large and national in scope it became the USHGA in 1973. As other leading sport aviation groups have done in the past, USHGA provided the structure needed for the sport of hang gliding. It set training standards, established pilot proficiency levels based upon training and flight goals, developed a cadre of certified hang gliding instructors, and provided for a means of ensuring that the self-regulatory aspect of hang gliding was provided for as intended in FAR Part 103.

Organized into regions with regional directors, USHGA supports local hang gliding groups throughout the country. Like every other aviation activity, USHGA has supporters and members among FAA employees. Glen Nicolet, who works at the FAA's Albuquerque Center, is also on USHGA's Board of Directors as a Regional Director. To show how FAA members both help and promote FAA policy as members of aviation's various segments, he described a hang gliding meet that he was involved in last year that took place in the mountains of New Mexico. He said by knowing and following the FAA's procedures, the meet's organizers were able to request and receive a special block of airspace over the mountain-top launch site that allowed the hang glider pilots to climb into the Positive Control Area above 18,000 feet MSL (by waiver, of course). His work with the group was only one example of the working relationship between the FAA, the hang gliding pilots at the meet, and the ultralight industry as the FAA tries to support all of the users of the National Airspace System whenever possible.

Airspace and Airport Access

Operator training and education programs such as USUA's, USHGA's, and EAA's go a long way in dispelling the belief that ultralight operators are a group of untrained and undisciplined people who must be kept away from "real" aircraft and airspace. Although some ultralight operators, like some others in aviation, will deliberately violate the FAR, the majority of ultralight operators, like most aviators, follow the rules. The only problem for the rest of aviation is knowing what set of rules are being followed. As this article has tried to point out, it is difficult to tell if what appears to be an ultralight is in fact an ultralight. Because of this identity problem, the next time you see "something" flying that you think does

not belong in your "real airplane" airspace check it out before you utter that familiar expletive. Regardless of how they look or are built, certificated "powered ultralight" aircraft have the same airspace access, operating privileges, pilot requirements, and other limitations as any other FAR Part 91 operation. And while ultralight vehicles must operate under FAR Part 103's rules and restrictions, they too have the same right of access to the National Airspace, as allowed by FAR Part 103, as any other aircraft.

The right of access to the National Airspace is an interesting point many airmen and airport operators forget. All aircraft, ultralight vehicles, and airmen have equal access to the National Airspace and facilities receiving Federal funds. The only restriction is they can be subject to certain operating rules and safety limitations. Only the FAR and any local restrictions developed by an appropriate authority with the concurrence of the FAA may limit access in certain cases in the interest of public safety. Ultralight vehicle access to certain public facilities has been one of the major problems in the industry. Many certificated pilots and airport operators have tried to limit ultralight vehicle access to certain public facilities without a valid safety reason. Over the years, EAA, USUA, USHGA, and other industry groups have worked closely with the FAA in assuring the ultralight industry's access to public facilities. In such cases, the FAA, in its dual role of promoting and regulating aviation then works with the groups involved to resolve the problem. Usually FAA only has to remind the local authorities that whenever a facility receives Federal money for airport development, that facility cannot arbitrarily ban or restrict public access to the facility. This rule applies equally to ultralight vehicles, parachutists, and other types of air operations. To restrict public access to any facility, the operators must prove to the FAA that public safety is jeopardized if the activity is permitted.

Photo courtesy of USHGA

Two-place training is not limited to powered ultralights. Hang glider flyers were the first to establish industry safety standards. Here a hang glider instructor flies with a student in a tandem harness.

Two-Place Trainer Exemption

Another example of the ultralight industry/FAA partnership is the FAA's approval last year of a change to the two-place training vehicle exemption. As a result of industry requests for a more capable two-place training vehicle, in July 1991 the FAA issued an amended two-year exemption to the weight, speed, and fuel limitations of FAR Part 103. The amended exemption allows EAA and USUA to approve the use of larger, faster, powered, two-place training ultralight vehicles in their own training programs. The exemption allows a vehicle to have a maximum empty weight of not more than 496 pounds, a maximum fuel capacity of not more than 10 U.S. gallons, a speed of not more than 75 knots calibrated airspeed (CAS) at full power in level flight, and a power-off stall speed of not more than 35 knots CAS. The exemption includes a list of restrictions and other operating limitations that restrict the use of the two-place vehicles only for training. Recognizing the benefit of a student soloing in the type of vehicle the student learned to fly in, the FAA in 1991 also authorized EAA and USUA to use two-place ultralight vehicles for student solo instructional flights as long as the flights were conducted under the close supervision of an authorized ultralight instructor.

The Future—One Opinion

It is impossible to predict the future of the ultralight industry. One reason is the ongoing rulemaking requests before the FAA. To be fair and impartial when judging rulemaking matters, the FAA must remain neutral; it cannot speculate on ongoing rulemaking. Evident from the research conducted for

Support Groups

For additional information on the powered ultralight industry, you can contact either USUA or EAA. Their addresses, and telephone and FAX numbers are:

United States Ultralight Association, Inc.
P.O. Box 557
Mount Airy, MD 21771
Telephone (301) 898-5000
FAX (301) 898-5846

Experimental Aircraft Association, Inc.
EAA Aviation Center
P.O. Box 3086
Oshkosh, WI 54903-3086
Telephone (414) 426-4800
FAX (414) 426-4828

For information on the unpowered ultralight industry, you can contact:

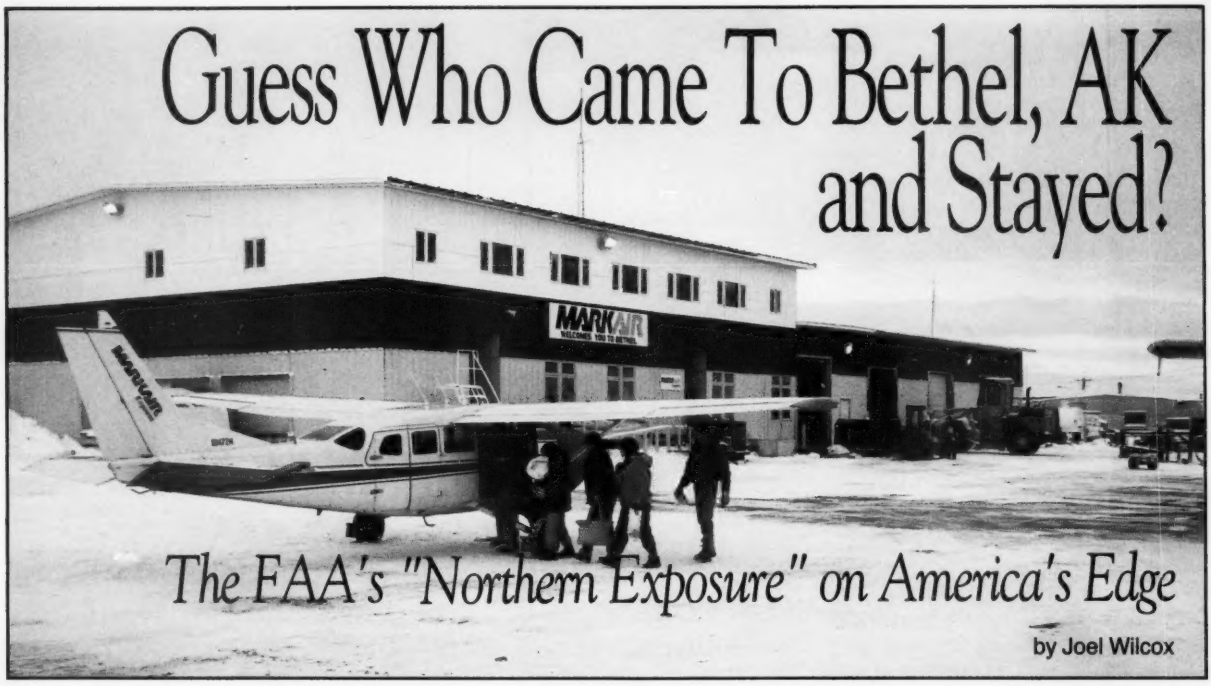
United States Hang Gliding Association, Inc.
P.O. Box 8300
Colorado Springs, CO 80933
Telephone: (719) 632-8300
FAX: (719) 632-6417

this article is that the future of ultralights could take one of several courses. First, if the FAA decides to take no action on some of the pending requests,the industry will remain as it is today—a largely unregulated sport. But if the history of aviation is any guide the next 10 years could be very different. The number of manufacturers could decrease while the performance and cost of the remaining manufacturers' vehicles could increase. In that scenario then, eventually as powered ultralight vehicle performance approaches and passes that of traditional aircraft, powered ultralights may become the new "ultralight" general aviation aircraft of the future. If the "aircraft line" is crossed, operators of the new, high-performance "ultralight" aircraft may have to become certificated pilots and operate under FAR Parts 61 and 91. Probably the new "aircraft" could cost from $20,000 to $40,000 and be sold as complete aircraft through dealer networks similar to the way general aviation aircraft were sold in the 1970's and 1980's. If any of these predictions come true, could ultralight "aircraft" be the fairy godmother waiting in the wings to save general aviation?

Only time will tell. ■

Photo by Jim Cail, ASI

Guess Who Came To Bethel, AK and Stayed?



The FAA's "Northern Exposure" on America's Edge

by Joel Wilcox

Passengers board a Cessna 207 in Bethel, AK. Commuter operators in Bethel favor the 207 for its ability to handle the many smaller landing strips in the Yukon-Kushokwim delta.

In a recent issue, we wrote of Flight Standards' role in assuring that the public gets to see safe yet entertaining aviation events ("Airshows," November/December 1991). In this issue we have an interesting story about how Flight Standards became a permanent presence in Bethel, Alaska—and the operators were glad of the FAA's arrival! As unusual as that might seem, the welcome mat was out because of the fair-minded, partnership approach Flight Standards has taken in the Alaska Region. Tom Stuckey, Alaskan Region Flight Standards Division Manager, recently stated, "Our goal is to continue working with our aviation community and the travelling public in [Alaska] to FLY SAFELY because safe aviation is for everyone."

—Editor

Prospective bush pilots beware: Do not use the "B" word when interviewing at Camai Air. "If someone mentions they want to be a bush pilot," said John Watts, Executive Vice President of Operations for this FAR Part 135 operator in Bethel, AK, "the interview stops." This is due in part, he said, to the new FAA presence in Bethel 24-hours a day, seven days a week. Until recently the 10 commercial operators based in Bethel could expect a visit from the FAA only once every four or five weeks. "It was an unreal world," said Watts, "the FAA was 400 miles away."

Indeed, Bethel is 400 miles west of Anchorage, site of the nearest FSDO. Located on the southwest coast of Alaska, Bethel is a community of 3,500 and the transportation hub for the Yukon-Kushokwim delta, an area roughly the size of Montana. Not a single road connects the more than 50 tiny villages scattered here. Even villages which are only a few miles apart must still travel and do commerce by air. One operations inspector recalls giving a Bethel pilot an ATP checkride. When he examined the pilot's *18* logbooks, he found they contained mostly flights of .2 and .5 hours duration.

The Bethel Air Traffic Control Tower handles about 7,500 flights each month, of which more than 90% are itinerants, stopping in Bethel only to

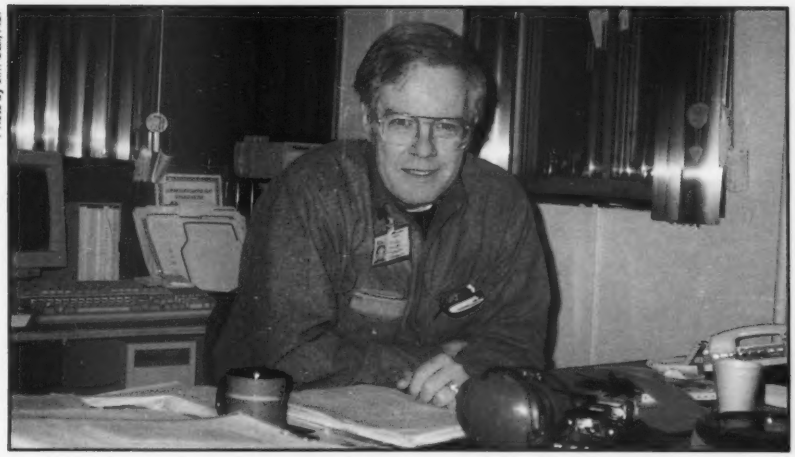


Photo by Jim Call, ASI

Left:
Mr. John Watts of Camai Air in Bethal, AK, believes constant FAA presence has increased operator professionalism.

Below:
Cargo from Anchorage is transferred aboard a Cessna Caravan in Bethel, Alaska. The Caravan is extremely popular in Alaska as a cargo and mail carrier

transfer people or cargo. Modern B-737's and workhorse DC-6's deliver everything from milk to mail to fishing line as air taxis by the score fan out across the delta with their bounty. In short, Bethel is one of the busiest level-one towers in Alaska, second only to the state capital of Juneau.

Obviously, with that scope of activity in Bethel, the FAA needed more than an intermittent, temporary presence. In June of 1991 the Anchorage FSDO opened a Bethel certification and surveillance unit there. Operations and airworthiness inspectors from Anchorage rotate in and out of Bethel every week. According Camai Air's Watts, the constant exposure has increased the professionalism of the commercial operators and has given them "more respect for the FAA. It's not just enforcement when somebody bends an airplane," Watts stated.

John Anderson, part owner and chief pilot of Kusko Aviation, cited the convenience. "It's easier to stop by and talk to someone in person than over the phone. The other day I was talking with the inspector here, and he pulled up my records [on the computer]. I had never had that done before." Gone are the days when operators had to spend $400 for a ticket to Anchorage for a test or a simple records verification.

Of course, the main reason for the FAA's presence in Bethel is safety. Paul Raker, an Anchorage FSDO operations inspector just back from his stint in Bethel, pointed out the unique weather conditions there because of Bethel's location on a large plain open to the Bering Sea. "You often get a 300-foot ceiling with 40 miles visibility," he said. "That weather encourages scud running—unless you have a constant FAA presence." He remembered visiting with Bethel FSS personnel one day during such weather. "The phone rang, and this fellow wanted to know if the FSDO inspectors were in Bethel. The Flight Service Station specialist said yes and asked if the caller wanted to talk to one. 'Heck, no,' he said, 'I just wanted to know if they were here!'"

Before the FAA became a familiar and welcome face in Bethel, operators there accepted accidents as simply a part of doing aviation business in a unique aviation environment. Flight Standards inspectors have shown them that accidents do not have to happen under any conditions; that, as partners, the FAA and operators can work together to prevent them. Has this new partnership had any tangible effect on aviation safety in Alaska? You be the judge: The partnership reduced total accidents throughout Alaska by 31% from last year—an all-time low record for the state. Of the experience in Bethel, Anchorage FSDO manager Dick Gordon says, "Our presence in Bethel has [had] a positive effect on aviation safety throughout the area. We plan to maintain our focus on Bethel as long as it takes to improve the level of safety and compliance with the Federal Aviation Regulations."

Flight Standards has not imposed safety on Bethel, Alaska. It has worked with and for the operators there to create an atmosphere of mutual respect for each other and for safety. ■

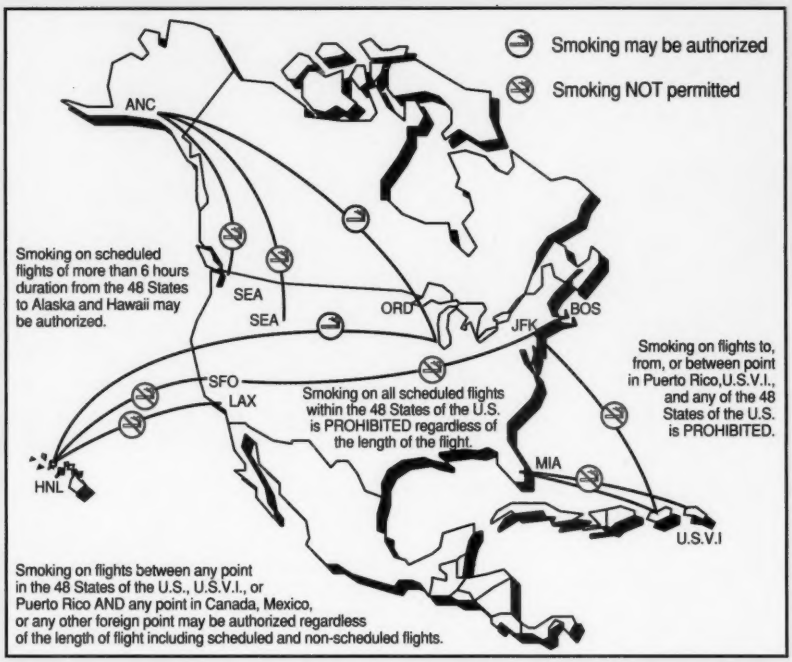
Editor's Note: Formerly with the U.S. Air Force in Alaska, Mr. Wilcox is now an Aviation Safety Inspector (Operations) with the Anchorage, AK Flight Standards District Office.

Photo by Jim Call, ASI

No Smoking Regulations for Air Carriers

Understanding When Not to Smoke

by Phyllis A. Duncan, Editor


Smoking may be authorized
Smoking NOT permitted
ANC
Smoking on scheduled flights of more than 6 hours duration from the 48 States to Alaska and Hawaii may be authorized.
SEA
SEA
ORD
JFK
BOS
Smoking on flights to, from, or between point in Puerto Rico,U.S.V.I., and any of the 48 States of the U.S. is PROHIBITED.
SFO
LAX
Smoking on all scheduled flights within the 48 States of the U.S. is PROHIBITED regardless of the length of the flight.
MIA
HNL
U.S.V.I
Smoking on flights between any point in the 48 States of the U.S., U.S.V.I., or Puerto Rico AND any point in Canada, Mexico, or any other foreign point may be authorized regardless of the length of flight including scheduled and non-scheduled flights.

General aviation pilots can set their own rules about smoking in their own aircraft, and for their health's sake, we hope they keep smoking in a confined, small cockpit to a minimum. However, we do not always fly ourselves; sometimes we have to be passengers on airliners. For those times we have to ride the cushions and to alleviate whatever confusion there may be about smoking while on board, here is an explanation of FAA's smoking regulations for air carriers—so you can protect yourself, either from enforcement action or, if you are a nonsmoker, from those who would violate the regulations.

In response to thousands of consumer complaints Congress in 1989 passed Public Law 101-164 prohibiting smoking on certain air carrier flights. As a result FAA amended FAR Parts 121, 129, and 135 to reflect the requirements of Public Law 101-164. FAR §§121.317, 129.29, and 135.127 prohibit smoking in the passenger cabins on most domestic and certain foreign air carrier flights during most scheduled flight segments in the U.S. The FAR also prohibit smoking on U.S. flight segments flown by foreign air carriers. For example, if a foreign carrier provides scheduled passenger-carrying service from London to New York to Chicago, it must prohibit smoking on the New York to Chicago flight segment.

But, just where is smoking prohibited? Specifically, the law prohibits smoking on any scheduled flight segment in air transportation or intrastate air transportation:

- Between any two points within Puerto Rico, the U.S. Virgin Islands, or any State of the U.S. (other than Alaska or Hawaii), or between any two points in any one of these jurisdictions (other than Alaska or Hawaii).
- Within the State of Alaska or the State of Hawaii.
- Between any point described above and any point in Alaska or Hawaii or between any point in Alaska and any point in Hawaii that is scheduled in the current *Official Airline Guide* for six hours or less in duration.

So, is smoking allowed under any conditions? Yes, a U.S. air carrier may authorize smoking on scheduled flight segments:

- Between any point in Puerto Rico, the U.S. Virgin Islands, or any of the 48 States of the U.S. AND any point in Alaska or Hawaii if the flight is scheduled in the current *Official Airline Guide* for *more than six hours* duration.
- Between any point in Alaska and any point in Hawaii if the flight is scheduled in the current *Official Airline Guide* for *more than six hours* duration.

A U.S. air carrier may also authorize smoking on other flights including:

- Nonscheduled or charter flights regardless of duration.
- Any scheduled flight that is between any point in Puerto Rico, the U.S. Virgin Islands, the 48 States of the U.S., Alaska, or Hawaii and any foreign point outside those jurisdictions.

Compliance and Enforcement

All passengers and crewmembers must comply with the FAR pertaining to smoking. FAA's position regarding enforcement of the smoking prohibitions is to treat a reported violation as the FAA would any other act of noncompliance; i.e., there would be an investigation of the circumstances and appropriate sanctions, if required, would be levied. The action FAA will take will differ according to the type of non-compliance. Non-compliance could be through ignorance of the regulatory requirements, or it could be willful. For example, if a person lights a cigarette as a reflex and, when told smoking is not allowed, puts it out and does not light another, no action on FAA's part would be required. Quite likely, the air carrier would not even report it to the FAA because the passenger, after being informed of the re-

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quirements, subsequently complied with the rules. (Air carrier procedures may require crewmembers to file an internal-use report on the incident.) On the other hand, if a passenger lights a cigarette and will not extinguish it when asked to do so, further action is necessary.

As a passenger on board an aircraft that is required by the FAR to prohibit smoking, you could be facing two situations: You could be the smoker or you could observe someone who is smoking. If you are the person who illegally lights up, extinguish the cigarette when asked to by a uniformed flight attendant or flight crewmember. If you do not, you are in violation of federal law and the FAR, and FAA will initiate an enforcement investigation much in the same way it does for non-compliance with, say, a minimum safe altitude.

If you are the person smoking and you do not cease when asked or if you are suspected of tampering with a lavatory smoke detector, you will be asked by a crewmember to provide picture identification. The crewmember will also advise you what you are suspected of and that it is violation of public law and the FAR. The crewmember is required by the FAR to report the incident to the FAA.

If you observe a person smoking or suspect that person has been smoking (e.g., in a lavatory), you need to pass that information on to a crewmember, most likely a flight attendant. Your part of it is finished, unless the FAA requires a witness statement from you during its investigation. Under no circumstances should you attempt to stop a person from smoking. As we all know, "to smoke or not to smoke" is an emotionally charged issue where emotions run high on both sides. Your most sensible action would be to summon a flight attendant and tell him or her what you have seen, but as a passenger you may also file a report with an FAA Regional Office.

Crewmember or Passenger Report

A flight attendant or other crewmember files a report on a smoking violation according to the air carrier's procedures. The air carrier then sends the report to the FAA principal operations inspector (POI) having the safety inspection and surveillance responsibility for that air carrier. A passenger may also file a report with any FAA Regional Office for further processing. All reports should contain the following information (Note: Some of the following information would only be on the air carrier's report, since a passenger would not have access to it.):

- The name and address of the smoker (if this information has been obtained)
- A physical description of the smoker
- The number of the seat in which the smoker was seated
- The location of the smoker's boarding and destination
- Names, addresses, and phone numbers of witnesses
- Names, addresses, and domiciles of other crewmembers
- The airline, flight number, and date
- A brief, objective narrative of the incident
- A statement and confirmation of the following information:
  - (i) Whether or not the passenger briefing required by FAR §121.571(a)(1)(i) was given and whether or not the smoker was on board the aircraft when the briefing was given
  - (ii) Whether or not the "no smoking" signs were illuminated or "no smoking" placards were posted

Crewmembers will obtain the above information or passengers should file a report when one of the following situations occurs:

- A smoker refuses to extinguish smoking materials immediately
- A smoker or someone who has tampered with a lavatory smoke detector becomes abusive
- The crew has evidence that a person has smoked in the lavatory
- The crew has evidence that a person has tampered with the lavatory smoke detector

Crewmember Interference

If a crewmember suspects any of the above has occurred, the crewmember must begin accumulating certain information for the report, and that includes asking the smoker for identification. The suspect person must provide this information and must do so without assailing the crewmember's right or authority to do so. Certainly, that person must not be abusive to the crewmember. If a person assaults, threatens, intimidates, or interferes with a crewmember in the performance of the crewmember's duties that person may be in violation of FAR §91.11 as well as criminally culpable under Section 902(j) of the Federal Aviation Act. If this occurs the air carrier will have security and/or law enforcement personnel meet the aircraft when it arrives at the gate. Law enforcement personnel will take appropriate action against the alleged violator, i.e., if you are the one who has interfered with a crewmember, you will be arrested in addition to possible FAA enforcement action. What constitutes cause for law enforcement officials to be called in? Crewmembers will request that police meet flights when the following occurs:

- A smoker refuses to produce identification
- A person who is suspected of tampering with a lavatory smoke detector refuses to produce identification
- A person suspected of smoking in a lavatory refuses to produce identification
- A smoker or person who has tampered with a lavatory smoke detector becomes abusive toward crewmembers or other passengers

In a situation where an accused person becomes physically or verbally abusive toward a flight attendant or other crewmember, it may be difficult for you, as another passenger, to resist any attempt to help the crewmember. If a person has become abusive, it is best to allow the crewmembers to handle the situation. They have received training on how to use non-threatening methods to approach passengers who are not complying with the smoking rules, how to avoid actions which could result in abusive passenger behavior, and how to avoid the involvement of other passengers to help obtain compliance from the smoker. The latter situation could be disastrous; imagine the crew having to deal with a plane load of people with negative feelings towards each other.

So, if you are a smoker, it is best for all concerned—yourself especially—for you not to light up when smoking is prohibited or for you not to tamper with a smoke detector in a lavatory so you will not be discovered smoking. ■

Photo Courtesy of CAP

A Civil Air Patrol Cessna R172E flies a search pattern for a downed pilot. Of its 500 corporate-owned and 9,000 member-owned aircraft, most are single-engine, high-wing models ideal for flying search missions.

Helping the CAP to Help You

by Dean Chamberlain, Associate Editor

This year about 2,000 general aviation pilots will be involved in some type of accident. Unfortunately, some will perish; others who crash off-airport will be found through the efforts of many volunteers including one such group which conducts about 80 percent of the civil aviation searches assigned by the U.S. Air Force in the United States each year. That group is the U.S. Air Force's official auxiliary, the Civil Air Patrol. The following fictitious story highlights some of the elements involved in a typical search for a missing general aviation pilot. We will discuss some of FAA's and CAP's search procedures and highlight some important things you can do to increase your chances of surviving an accident. The following information, some of which is reproduced from the AIM *may help you have an enjoyable and safe flying season.* —*Editor*

"Hello FAA, I think my sister is missing."

A not untypical telephone call received at an FAA facility. The woman tells the FAA representative that her sister Judy was going to fly to a mountain resort last weekend, and she has not heard from Judy since then. The caller said when she telephoned her sister's home there was no answer (Judy lives alone), and when she tried to call her sister at work she was told Judy has not been at work all week. It is now Wednesday. She is afraid something has happened to her sister.

You are the FAA representative who took the call. What do you say? What do you do?

You may choose to implement the national search and rescue (SAR) plan used to find missing aircraft. As we discuss some of the SAR procedures outlined in the AIM, we will point out ways you can use this information to help yourself be found.

The problem is that finding a missing aircraft is not as easy as finding something we lose in, say, a department store. In a store we can just go to the "Lost and Found," usually designated by a large, prominent sign. There are no signs leading us to the "Lost and Found" department for missing aircraft. Or are there? Although common sense says pilots cannot leave signs in flight, many pilots, like explorers of old blazing trails for others to follow, can leave signs for others to track. By following Judy's trail we will learn some of the ways we can leave our own trails for others to follow.

The important thing we all must remember in any search is that a hot trail is easier to follow than a cold one. And when time may mean life, the hotter the trail the better. In our example the trail is pretty cold. Five days have elapsed since Judy's sister last talked to her. It is not uncommon for searches to start days after an accident happens.

Paragraph 6-17(f) of the AIM states, "According to the National Search and Rescue Plan, 'The life expectancy of an injured survivor decreases as much as 80 percent during the first 24 hours, while the chances of survival of uninjured survivors rapidly diminishes after the first three days.'" Section (f) further states, "An Air Force Review of 325 SAR missions conducted during a 23-month period revealed that 'Time works against people who experience a *distress* but are not on a flight plan, since 36 hours normally pass before family concern initiates an [alert].' Prior to departure on every flight, local or otherwise, someone at the departure point should be advised of your destination and route of flight if other than direct. Search efforts are often wasted and rescue is often delayed because of pilots who thoughtlessly takeoff without telling anyone where they are going."

The section concludes with, "File a flight plan for your safety." There is that trail-blazing idea again: The faster you are found, the greater your chance of survival.

The search for Judy starts with two simple questions. Is she in fact missing, and if so, was her aircraft involved? These questions are important because not every "missing" pilot is missing. Many "missing" VFR pilots are found watching television at home after they failed to close their flight plans. (This type of "missing" pilot can expect to receive a polite phone call from the FAA.) In Judy's case, as part of the FAA's initial telephone search, a quick records check reveals that no aircraft was reported overdue or missing over the weekend in Judy's area. This information does not mean she is not missing. It only means that every activated flight plan was closed, there were no detected ELT signals, and there were no reports of any missing pilots over the weekend. As part of its check, the FAA asks local law enforcement officials to check Judy's hangar to see if her aircraft is there. The aircraft is missing. Based upon this preliminary information, the FAA notifies the Air Force Rescue Coordination Center (RCC) at Scott Air Force Base in Illinois that an aircraft may be missing. The Scott RCC then activates the National SAR Plan.

Normally, in the case of a general aviation aircraft, the Air Force then notifies the appropriate state agency and then the Civil Air Patrol about the missing aircraft and authorizes an Air Force-funded search for the missing plane. After receiving the Air Force search mission each state's CAP wing activates its own emergency service SAR procedures. An Air Force Rescue Coordination Center duty officer notifies Judy's state's CAP Wing of the search. The state Wing then designates a mission coordinator to oversee all aspects of the search and notifies local CAP squadrons responsible for Judy's area. (In the case of a search that crosses state lines, a regional search would be made using resources from two or more state wings.)

Quickly CAP volunteers start gathering information about Judy and her aircraft. Volunteers contact FAA, FBO's, and friends to determine her plans and travel itinerary. CAP asks Judy's friends, fellow pilots, local instructors, and others who may know her to help CAP develop a pilot profile of her. They do this by asking questions such as, was a flight plan filed? Did anyone see her or talk to her at her home airport before she left? Where was she going? Did she arrive at her destination? If so, where is she now? What type of pilot is she? What are her normal flight habits? Is she a risk-taker or a cautious pilot? How proficient is she? What are her pilot qualifications? Is she instrument rated? Does she always fly direct to a destination? How much fuel did her airplane have? Etc.

The profile data and other information will help the mission coordinator best use his or her resources. This information is vital because CAP uses different flight search methods depending upon what the preliminary data search reveals. Factors such as weather at the time the aircraft disappeared; the length of time the aircraft has been missing; the pilot's profile data; the type of aircraft and its speed and fuel range; plus other data which vary from search to search all play an important part as CAP prepares to search for the missing aircraft. The initial goal of any search is to determine if an aircraft is really missing, and if so, to try an establish a probable area within which the missing aircraft might be located. Then the goal becomes one of trying to reduce that area down to an even smaller area based upon such things as the aircraft's last known position, its speed and fuel range, flight route, radar track, weather, wind speed and direction at the time of the disappearance, and other such factors that might affect an aircraft's flight. By concentrating their search efforts in a smaller area rather than having to search thousands of square miles along a long-cross-country route, the CAP volunteer aircrews have a better chance of finding an aircraft quickly. When time may mean life or death, anything that reduces the search area is important.

In Judy's case, the initial telephone search revealed good news. First, CAP discovered she always filed a flight plan whenever she departed the local pattern. There was no record she had filed a flight plan to the resort's airport. A series of calls to the resort's airport manager revealed no record of her aircraft ever being there. Then calls to the resort revealed Judy was safe. Because of weather, she had decided to take a train rather than fly to the resort. Then when she decided to extend her trip, she had called her boss and asked for extra time off. The problem started when her boss then went on her own trip and failed to notify anyone in the office that Judy was

SAR Services Available

SAR is a combined function involving federal, state, and local governmental agencies as well as private volunteer organizations. The overall national SAR process in the United States is coordinated through the National SAR Plan. The Plan provides for the effective use of all available SAR resources, including searching, survival aid, rescue, and emergency medical help, regardless of the service source. Under the Plan, the Coast Guard provides SAR services in maritime regions and the Air Force is responsible for inland SAR coordination. Each service then has Rescue Coordination Centers (RCC's) to manage SAR efforts within their respective areas of responsibility.

Please remember SAR services are only a small part of the overall emergency services available to all pilots. There are other types of emergency services available. Chapter 6 of the AIM provides more information on available services. Paragraph 6-17 discusses Search and Rescue (SAR) procedures in detail.

taking several more days off. End of story—almost. The question remains why was her aircraft missing. Since Judy did not take the aircraft on her trip, a friend with some unexpected free time had taken it to his hangar to do an annual on it. The aircraft was safely locked away in another hangar.

Although this search story was written with a happy ending, not all searches end that way. This scenario does illustrate two of the most important things all pilots can do to help themselves in case they become the object of a search. Every time you go flying let other responsible people know your plans: i.e., such as where you are going, when you will be back, your route, and that you arrived safely if not returning home. Then before you take off, the single most important thing you can do is file *and then activate* a flight plan for every leg of your flight. Then, in case you have an accident en route, the flight plan allows the FAA to initiate expedient search activities for you when your flight plan is not closed. Filing for every separate leg also reduces the delay time before the FAA starts looking for you. For example, if you file a five hour, round-robin type of VFR flight plan with three legs, and you have an accident 20 minutes into the first leg of the flight, you can wait hours before the FAA misses you. But if you file for each flight leg, you will be missed after the first leg's ETE elapses, and you fail to close the flight plan.

Ways to Help Yourself

As we said in our fictitious story, flight trails are simple and easy to leave. You only have to file a flight plan, activate it if it is a VFR flight plan, provide accurate and timely position reports en route, and make sure it is closed upon landing. If you are filing IFR, in most cases the FAA automatically opens and closes your IFR flight plan when your aircraft departs and lands. But do you know when the FAA does not automatically open and close your IFR flight plan? (The Airman's Information Manual's Chapter 5 contains the answer.) Although an activated flight plan is your best single source of SAR help, there are other things you can do to help yourself be found in case of an accident.

Normally it is an air traffic control (ATC) facility or a flight service station (FSS) that notifies one of the Air Force RCC's that an aircraft is missing and SAR support is needed. But before ATC or FSS can notify one of the RCC's to initiate SAR procedures, the FAA must know there is a problem. Someone must notify one of the facilities that an aircraft is in trouble, overdue, or missing. Although others can and often do notify the FAA, the smart pilot will contract ATC or an FSS facility about a problem long before it causes an accident. After all, you are the first to know you have a problem, you have the most to lose in an accident, and you are always first at the accident scene. Plus in most cases you are the only one who knows exactly where you are at the moment.

The easiest way to tell ATC or a FSS you are having a problem is by radio using your current frequency or one of the facility's other designated frequencies listed on your chart. Remember you can always use the emergency frequencies of 121.5 MHz or 243 MHz, as appropriate. If you are not in contact with a local facility, call the appropriate air route traffic control center (ARTCC) responsible for the airspace you are flying in. For aircraft so equipped, you can also call the Coast Guard on 2182 kHz. The call sign "Coast Guard" is monitored by all Coast Guard ships and facilities along the Great Lakes and coastlines. Many commercial operators in those areas also monitor the Coast Guard frequency. Remember the range for 121.5 MHz and 243 MHz is generally line of sight. The range for 2182 KHz is about 300 miles or less.

Radio Procedures

Whenever a pilot needs assistance, the following procedures from the AIM should be used. A pilot in *distress* should use the words "MAYDAY, MAYDAY, MAYDAY" to get ATC's attention and priority handling as well as commanding everyone else to stay off the frequency in use. The words "PAN-PAN" are used in situations demanding *urgency* handling. Only distress signals have priority over urgency signals. The difference between the two words is important. The AIM defines distress as, "A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance." It defines urgency as, "A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition." The survival key is preventing an urgency situation from becoming a distress situation. One way is by talking to ATC. In cases where the designated facility does not respond, the call can be made in the blind to any facility by calling, "Any Station (Tower), (Radio), or (Radar)." The facility being called should acknowledge the call immediately. In case the facility does not respond, any other station hearing the MAYDAY or PAN transmission will respond.

The following procedures, including the use of the transponder, should be used in case of a problem. The order is not as important as being able to do as many as time permits. The procedures are from AIM paragraph 6-22 titled, "Obtaining Emergency Assistance."

1. Climb, if possible for improved communications, and better radar and direction finding detection. The extra altitude will also give you more glide range which increases your landing options. However, it must be understood that unauthorized climb or descent under IFR conditions within controlled airspace is prohibited, except as permitted by FAR §1.3(b).

2. If equipped with a radar beacon transponder (civil) or IFF/SIF (military):

a. Continue squawking assigned MODE A/3 discrete code/VFR code and MODE C altitude encoding when in radio contact with an air traffic facility or other agency providing air traffic services, unless instructed to do otherwise.

b. If unable to immediately establish communications with an air traffic facility/agency, squawk MODE A/3, Code 7700/Emergency and MODE C.

3. Transmit a DISTRESS or URGENCY message consisting of as many as necessary of the following elements, preferably in the order listed:

a. If distress, "MAYDAY, MAYDAY, MAYDAY"; if urgency, "PAN-PAN, PAN-PAN, PAN-PAN."

b. Name of station addressed.

c. Aircraft identification and type.

d. Nature of *distress or urgency.*

e. Weather.

f. Pilots intentions and request.

g. Present position, and heading; or *if lost*, last known position, time, and heading since that position.

h. Altitude or flight level.

i. Fuel remaining in minutes.
j. Number of people on board.
k. Any other useful information.

4. After establishing radio contact, comply with advise and instructions received. Cooperate. Ask questions or clarify instructions when you do not understand or can not comply with the clearance. Silence interfering radio stations. Do not change frequency or change to another ground station unless absolutely necessary. If you do, advise the ground station of the new frequency and station name before changing, transmitting in the blind if necessary. If two-way communications cannot be established on the new frequency, return immediately to the last frequency or ground station where two-way communications existed.

5. If a crash, bailout, or ditching is imminent the following may help assist the SAR efforts.

a. Time and circumstances permitting, transmit as many as necessary of the message elements listed above and any of the following that you might think helpful:

1. ELT status.
2. Visible landmarks.
3. Aircraft color.
4. Number of persons on board.
5. Emergency equipment on board.

b. Activate your ELT if the installation permits.

c. For bailout, and for crash landing or ditching, if risk of fire is not a consideration, set your radio for continuous transmission if possible.

d. If you must ditch, ditch near a surface vehicle. If time permits, an FAA facility should be able to get the position of the nearest commercial or Coast Guard vessel from a Coast Guard RCC for you.

e. After a crash landing unless you have good reason to believe that you will not be located by search aircraft or ground teams, it is best to remain with your aircraft and prepare means for signalling search aircraft.

Many pilots may have heard of the above procedures in a simpler form as the 4C's: (1) Climb, (2) Communicate, (3) Confess (the problem), and (4) Comply (with instructions issued).

Things Not to Do

The following are a few examples of *what not to do* to help yourself survive an accident. The problem is you have done everything wrong since you left your home this morning. First since it was a clear, warm, spring day you suddenly decide to jump in your aircraft and go flying. Because it is a warm day, you are wearing only lightweight clothing and no jacket. Being a "modern" pilot, your only survival gear is your credit cards. You do not smoke so you do not carry a lighter or matches. When you saw the clear sky you decided not to get a weather briefing from Flight Service. After all, who needs a briefing when there are no clouds in sight. If you had called for a weather briefing and to file a flight plan, the FSS would have told you there is rain and falling temperatures in the forecast. But as you said to yourself, "Who needs a flight plan on a clear day." Besides, you are not going far, and you will be back before anyone misses you. Thoughts like, "I am a safe pilot," and "Accidents only happen to other pilots" flash through your mind during your cursory preflight. As you walked around your aircraft, you never thought about doing an ELT test, for that matter, you do not even know how to do an ELT test. But it is a great day so you jump into your aircraft and depart.

Do any of these comments sound familiar to you? Do you know any pilots who normally view local flying like this? How many pilots do you know who take off without anyone knowing where they are going, or when they will be back? Do you know any pilots who are never prepared for the seasonal environmental problems they may face in case of an accident? Are you prepared to provide for such critical survival items as shelter, water, and heat as required in the event of an accident? Are you dressed to walk home? How long has it been since you heard the old saying about being dressed the way you want to be found? The saying provides some good basic survival guidance whether you are flying, driving, or doing some other outdoor sport. The basic idea is to be like a Scout: prepared for any emergency. The following ideas may not be taught in Scouting, but they may help you survive and be found after an off-airport emergency landing.

Things Not to Hit

This portion of the article could also be called, "Things to avoid when having an accident." Although this title sounds funny, its intent is not. The title serves to remind all of us that what happens during an emergency landing immediately affects both our survival and chances of our discovery. Our "accident" is about to happen. Because of ice in the fuel system, (the pilot should have drained the sump) the aircraft makes an emergency landing 20 miles from Anytown Airport, Any State USA, in a forest of evergreen trees. The crumpled aircraft comes to rest under a large pine tree. Unknown to the trapped pilot, the airplane is hidden by trees. Learning point—if at all

CAP Lt. Col. Joseph M. Rosenthal (left) and CAP Lt. Col. Larry J. Nemecek of the Congressional Squadron plan their mission during a recent search for a missing student pilot.

Photo by Dean Chamberlain

possible land or "crash" in an open area away from trees. Leaf-covered trees in summer and evergreens anytime of the year hide aircraft very well. In winter, snow hides aircraft almost better than trees. The lesson is the aircraft and accident scene must be as visible from the air as possible to aid discovery. Surprisingly, an aircraft that crashes vertically into a forest does not disturb the trees very much. And needless to say, water hides aircraft very well.

Your key to being found is to make yourself and aircraft as visible as possible. Brightly colored tarps, aircraft covers, signal fires, smoke devices, aerial flares, road flares, strobes, and broken pieces of the wing and aircraft as well as other such devices you may be carrying are some of the ways you can make you and your aircraft more visible. In daylight, a mirror is one of the best signal devices you can use.

If possible after an accident, you should check your ELT to make sure it activated. (All pilots should periodically test their units in accordance with the instructions in the AIM. The recommended three-sweep maximum test cycle during the first five-minute test period after any hour will tell you if your transmitter works.) Remember even if your ELT tests okay on the ramp, not all ELT's involved in accidents activate properly. Some are damaged beyond use, some are simply inoperable, and some do not hit hard enough to activate. If possible after an accident, you should tune your radio to 121.5 MHz to see if the ELT is transmitting. And if the radio is still working, you should use 121.5 MHz to try and call for help. (Also to help other pilots, all pilots should periodically monitor 121.5 MHz or 243 MHz in flight to see if there are any activated ELT signals along their route of flight. If any is received, note your position and notify an ATC facility.) Finally, all pilots should monitor 121.5 MHz or 243 MHz before shutting down their aircraft to ensure that, that last "hard" landing was not hard enough to activate their own ELT. This self-test saves the FAA, the Air Force, and CAP from having to find the activated ELT because SAR satellites report all received ELT signals which then have to be located and checked out. This final ELT radio check might just save you a trip back to airport to turn off your ELT. A properly functioning ELT is a pilot's best friend in an emergency. It is also one of your best means of being found.

Combine a good ELT with today's SAR satellites and ELT airborne and mobile ground receivers; add a few dedicated searchers such as CAP members or those from any of the many other fine volunteer groups that search for missing people and aircraft; mix in a pilot who always files a flight plan and who is prepared for any emergency; and you have the ingredients for a successful recovery.

Have a safe and happy 1992 flying season. ■

This Is Civil Air Patrol

The Civil Air Patrol, or CAP, which members pronounce as C-A-P, not "cap" as in hat, celebrated its 50th anniversary December 1, 1991. Founded in 1941, CAP provided a means for civilian pilots to support the war effort during World War Two. As part of the war effort, CAP later came under the control and direction of the Army Air Forces in 1943. During the war, CAP provided anti-submarine patrol support along the Atlantic and Gulf coasts as well as other services including patrolling the borders for spies. As part of its patrolling activities, CAP is credited with sinking two submarines, reporting 173 sightings and dropping 83 bombs and depth charges on 57 of the reported subs. CAP crews flew more than 86,000 missions or more than 244,000 hours over coastal waters during the war. It summoned help for 91 ships in distress as well as for 363 survivors of submarine attacks. During the war 26 CAP pilots or observers were killed, and nine aircraft lost.

Following the war, CAP became a permanent peacetime organization. On July 1, 1946, then President Harry S. Truman signed Public Law 476 incorporating CAP as a non-profit organization. In May 1948 Public Law 557 then made CAP the only official auxiliary of the U.S. Air Force.

Since then, CAP's emergency services role has expanded to serve all 50 states, Puerto Rico, and the District of Columbia. Today, CAP provides emergency services, including SAR, for local, state, and federal agencies. In 1985 CAP started flying air reconnaissance missions for the U.S. Customs, and since 1989 for both the Drug Enforcement Administration and the U.S Forest Service. CAP also provides support for natural disasters and helps organizations such as the Red Cross.

In addition to its emergency services mission, CAP provides an extensive aerospace education program across the nation as well as a Cadet Program for teenagers. Each year CAP trains about 7,000 teachers in aerospace subjects in about 200 workshops at 150 colleges and universities. CAP's Cadet Program for young people ages 13 to 21 provides an interesting opportunity for them to learn of flying, first aid, leadership, and all of the other functions in CAP. Cadets also perform many of the tasks involved in CAP's participation in the periodic general aviation aircraft survey CAP does in cooperation with the FAA and industry.

CAP's 57,000-plus members train to help find you if the need arises. Maybe you can help CAP. Call your local CAP squadron today for information on how you may join or volunteer your services and time. You may find that while sharing your aviation expertise, you may also learn something about flying and survival from one of your fellow pilots that you never knew. There is a risk, you might find yourself having fun. As CAP's stationary says, "1941-1991, Fifty Years of Service."

Flight instructors make sure their students have no surprises during a routine familiarization flight. To build the non-flying public's confidence in general aviation, all pilots should try to make these first flights fun yet uneventful.

Preflight Passenger Preparation

Reassuring Your Passengers the Airline Way

by Simon Whitney

As a pilot and flight instructor one of the things I enjoy most is giving "first flight" rides to people who have never flown in a small airplane before. Some are raring to go; others are understandably nervous. Either way, I give them a long and involved preflight briefing that I think is important but which usually serves to make my passengers impatient. Imagine my delight when Mr. Whitney submitted an article that shows he feels the same way. I am not alone in wanting my passengers' first flights in a small airplane to be memorable for all the right reasons. —*Editor*

Your good aviation sense tells you that your passengers should receive a thorough preflight briefing, including instructions on emergency situations. Although the FAR require briefings only on how to fasten and unfasten seat belts (FAR §91.107(a)) for non-commercial operations, your liability lawyer might argue for a more detailed preparation for your passengers. But just what should you discuss? Here is what I would say—and when.

Begin the preflight briefing when the idea of the flight is first raised, when your friends say, "Take me up for a flight sometime." To prepare potential passengers properly requires them to process a great deal of information; consequently, you may want to discuss weather parameters, survival information, etc., over the phone or during a meeting a day or so before the actual flight occurs.

Begin by explaining that flights must be planned and are subject to all sorts of variables, like the whims of weather. Your passengers need to know that a planned flight may be canceled if the weather turns. Unless they are willing to accept that possibility, they should not go with you. If you are quite clear and perhaps a little blunt on this, it should vaccinate them against "gotta-get-there-itis." Even an IFR-rated pilot cannot promise the boss that they will be there for sure at a specific time unless they have enough time for weather delays built into the schedule.

Give the passenger-to-be an overview of general and emergency procedures, then provide specifics at the airport. Go ahead and mention off-airport landings now, but do not be apologetic about it. Part of what makes you a good pilot is being prepared for emergencies, and you should be proud of your prepared attitude. When you care enough about your passengers to prepare them for any eventuality, it proves to them that you really are trustworthy and that this flight might be fun after all.

I do not mean that you should alarm them with horror stories. Present your safety information in a positive way:

i.e., flying is safe, in part, because we are prepared to handle emergencies and emerge from them successfully. Despite this reassurance, some potential passengers will still be apprehensive about flying in a little plane with you. Take their concerns seriously; not everyone will enjoy flying in a small plane. That is why we have other ways to get from A to B. If a potential passenger is apprehensive on the ground, what will happen in the air? Rethink that flight if nobody except you is committed to it; it might be better to go alone. Some potential passengers may be reassured by a short "demonstration" flight in the traffic pattern; some will not. If they are still uneasy, a cross-country flight with them on board is probably ill-advised.

But let us assume the best: They have been impressed by your concern for their well-being and are ready to go. There are a few questions you need to ask yourself and them. Are your passengers claustrophobic? (Better to find out on the ground.) Will passengers be allowed to smoke? Will you be smoking? Again, these are all items that need to be covered before the plane is in the air.

Next, tell your passengers that you will need to concentrate on flying the airplane during takeoff and landing and that they should keep questions and comments (except about other traffic) to themselves until you give them the clear signal during cruise. However, explain that even during cruise, you will have flying duties that may require you to interrupt them or break off a question. Reassure them that they will also have jobs that will keep them busy—watching for other aircraft and, of course, enjoying the flight.

On the day of the flight, be sure to allow enough time for an unhurried briefing at the airport. You should do as much of this briefing away from the plane and tiedown area as you can. Your passengers will be excited about flying, and the sights and sounds of other aircraft will be distracting. So, sit down with them in the lounge, coffee shop, or pilot's briefing room where it will be easier for them to pay attention.

Review emergency procedures first: The plane can land safely away from an airport, and that could happen either out of necessity (engine failure) or choice (unforecast weather closing in). Explain that you have been trained in the procedures for an off-airport landing, and tell them what to expect should that occur. If you do need to land in a field or on a road somewhere, your passengers will be much less rattled if you have already told them what to expect and that you can do it safely.

Of course, the pilot may not always walk away from every off-airport emergency landing. Now is not the time to inform your passengers that you could be killed, but they do need to know what to do after an off-airport landing if you cannot tell them. First and foremost, they should get clear of the air-

EMERGENCY INSTRUCTIONS FOR PASSENGERS

INFLIGHT

- Stow or secure sharp, hard objects under the seat
- Fasten seat belt and shoulder harness if available
- Follow pilot's instructions but avoid interference

BEFORE LANDING

- Protect face with crossed arms, bundled clothing, or extra seat cushion

AFTER LANDING

- EXIT IMMEDIATELY (assist others if possible) via cabin door located at_____

_____

OPENING INSTRUCTIONS:_____

_____

ADDITIONAL DOORS located at_____

EMERGENCY EXIT(S) located at_____

_____

IF EXIT(S) JAMMED OR BLOCKED, BRACE YOUR BACK AGAINST SOMETHING SOLID AND KICK WINDOW(S) OR BAGGAGE COMPARTMENT OUTWARD.

- REMAIN CLEAR of aircraft until you are certain there is no danger of fire, then return to it for shelter.
- EMERGENCY LOCATOR TRANSMITTER should transmit automatically on impact and in most cases will summon assistance shortly. To assist rescue, make certain crash site is conspicuous, and be alert for overflying aircraft.
- FIRST AID KIT is located_____
- SURVIVAL GEAR and water are located_____
  (Use enclosed materials for SOS signalling, fire building, bedding, building, chopping, etc.)
- FLOTATION DEVICE(S) located_____

IMPORTANT: AFTER INITIAL EVACUATION, STAY IN OR NEAR THE AIRCRAFT, IT IS THE FOCAL POINT OF ANY SEARCH AND MAY BE YOUR BEST SHELTER. IF YOU SEEK AID ON FOOT, LEAVE A NOTE.

plane immediately because of the fire hazard. Once that hazard is clearly past, the airplane may be their only shelter.

This is where you explain flight plans to them and how, by filing one, FAA will initiate search and rescue operations if you have not closed out the flight plan by a certain time. (See the article, "Lost and Found" on p. 14 of this issue.) That is also why, unless there are houses or roads nearby, passengers should stay with the aircraft—because it is big, visible, has an ELT, and will be missing.

These are some of the general issues you should brief on before going to the plane, but there is one last item—a short lesson on propeller safety. They will be walking near general aviation aircraft and need to understand just how dangerous propellers are. I like to describe the propeller as a large lawn mower blade with no safety shield; others have likened it to the whirling blades of a kitchen blender or food processor.

Now, take them to your airplane. If you have brought a child along, hold the child's hand firmly; do not trust children to act predictably in this exciting and novel environment. At the plane, a brief, general description of the flight controls is in order. Then, show them where the ELT is and how to make sure it is activated. Also indicate where the fire extinguisher is and how it operates. If you will be flying over water, explain ditching procedures and what to do once the plane is in the water. Indicate the location of any life preservers on board and demonstrate how to use them.

Your passengers should know what ditching and survival gear you carry, and a small book on survival is a worthwhile part of that gear. You may have wilderness camping experience, but they may not. If you are not into roughing it, there are good books and videos available on wilderness survival; consider reading or watching one or two yourself. Consider asking your passengers to do the same in case an unplanned landing puts you in a survival situation.

Now, move them into their seats. Get them comfortable with the seats adjusted properly, then show them how to buckle their seat belts and shoulder harnesses and get them settled in. The FAR say seat belts and shoulder harnesses must be worn by passengers only for takeoff and landing (FAR §92.107(b)), but I personally would not allow anybody to unbuckle a seat belt at any time during the flight; that goes for kids and adults alike. If they do not like it, they can walk!

Teach your passengers how to open and shut the doors. Show them the emergency exit if you have one. This would be a good time to tell them that if a door opens in flight they should await instructions from you. Stress that this situation is not a serious emergency and that they should not take drastic action to yank an open door closed.

Explain the windows. Can they be opened in flight? What happens if one inadvertently opens in flight?

Tell them where the airsick bags are, and ask them to tell you if they do feel sick. Remember that headache and nausea are symptoms of carbon monoxide poisoning as well as airsickness.

If applicable, show them the oxygen system and how it works. Also show them how to adjust any temperature controls.

If you have an intercom, demonstrate how it works on the ground with the engine off (in case one of them accidently keys a mike open). Also show them the fundamentals of how to work the radio. If there is a forced landing and you are incapacitated and the aircraft is damaged, the radio may still work. Show them how to tune it to 121.5 and how to call for help. Although your signal may not reach a ground station, commercial airliners do monitor 121.5, and they may hear a call for assistance. Emphasize to your passengers that they should not return to the airplane to use the radio until the fire danger is over.

Your right-seat passenger has a particular responsibility if the plane has dual controls: to keep his or her hands and feet off the controls at all times. In an emergency, a panicked passenger may try to take control of the airplane or, at the very least, may want to "help" you control it. From this point of view, the ideal right-seat passenger is a child who cannot reach the controls and who could not overpower you if he or she tried to. The worst is probably a professional football player. Of course, you can make anybody functionally shorter by sliding the seat all the back even if the passenger does not need the extra leg room.

I have never allowed a right-seat passenger to "fly the plane" while airborne. It seems like a better habit to have them keep hands and feet strictly off the controls. Nor do I let them "follow through with me" on the controls, a practice which, if things went slightly wrong during takeoff or landing, could end up drastically wrong. The reason for this restriction is obvious: Suppose a car or another aircraft crosses the runway in front of your airplane on takeoff. If the right-seat passenger reacts as if he or she were in a car and "hits the brake" (i.e., the right rudder) and turns the "steering wheel" (you know what that is!), pretty soon you could be doing a snap-roll at an unsafe altitude. Of course, if you are a certificated flight instructor (CFI) and the passenger is a potential student, you can relax this restriction and give a little dual. The important thing is do not act like a CFI if you are not. CFI's work hard to learn how to let a novice handle an airplane. If you are not a CFI and your passengers want to try flying, tell them that most flight schools will take them up for an introductory ride with a CFI for a reasonable fee.

Even after the briefing is over and you are underway, it is still a good idea to explain what you are going to do before you do it. That way your passengers will not worry that the engine has done something funny when you rev it for a magneto check or that it has quit completely when you cut power for landing.

Your passengers will not remember a lot of these details, of course, so you should have written instructions available, and you should tell passengers where to find that information. Several years ago *FAA Aviation News* had a good article on this topic (January/February 1985), and we have reprinted the sample information card from that article.

This may seem like a lot to talk about before a short flight, but part of the reason for taking friends and family up is to get them interested in and supportive of your love of aviation. The more knowledge they have the more likely they are to enjoy it themselves. Just remember, a frequent passenger needs to know something about what to do if you are disabled in flight. There are seminars, pinch-hitter courses, books, and videos on the topic; invest in one or more of these quick ways to put your passengers at ease.

Better yet, talk them into getting their license! ■

Editor's Note: Mr. Whitney is a private pilot from Snohomish, WA, who would like to extend credit to the late Larry Lassiter's Flight Tech Private Pilot Checkride course for some anecdotes in this article.

• Abandoning NDB's

I would like to know whether there is a FAA policy to abandon the NDB as a navigational facility. A number of NDB's in this area have been out of order for a long time, and we are forced to go a long way to practice NDB approaches.

It would seem that the NDB is a very inexpensive way to provide useful instrument approaches to small airports where there may never be a better system. I would like to see them continued.

Leo Horacek
Morgantown, WV

The FAA has no current plan to abandon the NDB as a navigational device. The FAA recently, in the last few years, upgraded its NDB's from tube to solid state equipment to increase longevity and reliability. Many of the NDB's located throughout the country are funded and supported by many of the various state aeronautical agencies. Many of the states have a very active support program for local airports. Examples of state support includes NDB equipment, airport automatic weather reporting systems, and other services.

• Competency Question

I see what appears to me to be an ambiguity between FAR §§61.57(e)(2) and 61.193(a)(6). The first seems to say that the instrument competency check in question must be given by a certificated flight inspector, the second says that it is one of the authorizations for a CFI. Can you please clarify this for me?

Leo Horacek
Morgantown, WV

Regarding your second question, FAR §61.57(e)(2) states the instrument competency check may be given by an FAA inspector, a member of an armed force of the United States authorized to conduct flight tests, an FAA-approved check pilot, or a certificated instrument flight instructor. In your letter you used the terms inspector and instructor. Although both can give an instrument competency check, the terms are not interchangeable. The inspector referred to in the FAR is an FAA aviation safety inspector. The flight instructor referred to in the FAR can only give an instrument competency check within the limitations of his or her certificate in accordance with FAR §61.193(a)(6). The key to answering your question is, if a certificated flight instructor is giving the instrument competency check, the instructor must be an instrument flight instructor as required by FAR §61.57(e)(2).

• ATP Checkride Sign-offs

An ATP applicant does not need an instructor or ATP sign-off for an initial check ride; however, if the applicant fails the practical test and wishes to take the test again within 30 days an endorsement is required. Does the CFII who signs off the applicant for a retest within the 30 day period need to hold an ATP rating on his or her pilot certificate?

Lyle Mortenson
APO Europe

If we understand you question to be: Must a certificated flight instructor hold an airline transport pilot (ATP) certificate in order to endorse an applicant for a retest within 30 days of failing the initial ATP practical test, the answer is no.

• Stalling Vmc

FAR § 23.149(b) specifies that Vmc (minimum control speed with the critical engine inoperative) be no greater than 1.2 Vs1 (stalling speed or the minimum steady flight speed obtained in a specific configuration) under the conditions listed for reciprocating engine powered airplanes. Is there any minimum value placed on Vmc for certification such as not less than Vs1? The discussion has arisen from notes made in the PA-44 Pilot Operating Handbook (POH) that state "Vmc is a stalled condition." Is this possible?

Sean K. Jeralds
Prescott, AZ

Minimum value for Vmc decreases as altitude increases. The reason there is a note in the PA-44's POH is to warn pilots that the aircraft's stall speed at max gross weight is greater than Vmc which is generally determined at a lesser weight. According to a PA-44-180 POH, Vs1, the bottom of the Green Arc (Normal Operating Range) is 57 KTS IAS. Vmc is 56 KTS IAS. In this case the aircraft will stall before reaching Vmc.

Multi-engine pilots need to be aware under certain weight and operating conditions (such as density altitude and flap position), some aircraft will stall before Vmc is reached. Then, the stall speed prevents reaching Vmc. If the aircraft stalls just before or as it reaches Vmc, a dangerous stall/spin could develop in an aircraft not normally approved for spins. This could be fatal at low altitudes. Pilots planning on doing Vmc demonstrations should review their POH and density altitude charts before attempting such demonstrations to ensure that they can fly the maneuver safely.

FAA AVIATION NEWS welcomes comments from our readers. We may edit letters for style and/or length. We will select one representative letter from those on the same topic for publication, and, because of our bimonthly publishing schedule, responses may not appear for several issues. We will send personal replies only upon request. We will not print anonymous letters, but we will withhold names upon request. Address: Editor, FAA AVIATION NEWS, AFS-810, Washington, DC 20591.

• Just a Suggestion

Here is some information to add to the September/October 1991 "Instrument Corner." Always remember to turn up the volume on your VOR, as that frequency may be used by the controller in the event of radio failure.

Great new look to the magazine—good for you.

Paul Chapman
Harlingen, TX

To clarify: In the case of *complete* communications radio failure remember to turn up the volume on your navigation radio as the controller may attempt to provide instructions to you on a VOR frequency.

INSTRUMENT CORNER

• Instrument Cross-country Distance

How is the 250-nautical mile distance determined for the instrument rating "long cross-country?"

Jeff Hanson, CFI
San Carlos, CA

The FAA intended that the scope of cross-country flight experience required for the issuance of an instrument rating be consistent with, and not significantly less than, the cross-country experience required for the issuance of a private or commercial pilot certificate.

Further, it should be noted that FAR §61.65(e)(1) is the controlling regulation, in that each flight to be credited towards the instrument rating cross-country experience requirements must include a landing at a point more than 50 nautical miles from the original departure point.

The 250-nautical mile distance cross-country is a specific requirement of FAR §61.65(c)(4) and consequently must include a landing at a point more than 50 nautical miles from the original departure point to meet the requirements of FAR§61.65(e)(1).

DWI REMINDER

Drinking and driving can ground you. Since the late 1990 effective date of FAA's "DWI" rule, approximately 400 pilots have been the subject of certificate enforcement action. These enforcement actions have mostly been taken because of the pilot's failure to report a motor vehicle action to the FAA within 60 days as required by FAR §61.15(e).

FAR §61.15(c) defines motor vehicle action as a conviction or cancellation, suspension, revocation, or denial of a driver license, after the regulation's effective date, for a cause relating to the operation of a motor vehicle while intoxicated, impaired, or under the influence of alcohol or a drug.

FAR §61.15(e) states that, "Each person holding a certificate issued under this part shall provide a written report of each motor vehicle action to the FAA, Civil Aviation Security Division (AAC-700), P.O. Box 25810, Oklahoma City, OK 73125, no later than *60 days after the motor vehicle action.*" That report must include:

1. The person's name, address, date of birth, and airman certificate number.
2. The type of violation that resulted in a conviction or administrative action.
3. The date of the conviction or administrative action.
4. The state that holds the record of conviction or administrative action.
5. A statement of whether the motor vehicle action resulted from the same incident or arose out of the same factual circumstances related to a previously-reported motor vehicle action.

Failure to comply with FAR §61.15(e) is grounds for denial of an application for any certificate or rating issued under this part for a period of up to one year after the date of the motor vehicle action or suspension or revocation of any certificate or rating issued under FAR Part 61. Under FAR § 61.15(d) two or more alcohol or drug related motor vehicle actions within a three-year period may result in suspension or revocation of a pilot's certificate.

Furthermore, FAR §67.3 requires each pilot applying for a medical certificate to sign a consent form authorizing the National Driver Register (NDR) to provide information to the FAA about the pilot's driving record. This authorization allows FAA to verify the information provided by the pilot on an airman medical application. In the event there is a "match" of the pilot with the NDR, the FAA then verifies the match with the records of the state that reported the information to the NDR.

It is, in part, through the computerized NDR match process that the FAA discovers violations of the "DWI" rule. Additionally, noncompliance with FAR §67.20 discovered through the "DWI" program is a basis for suspending or revoking any airman, ground instructor, or medical certificate or rating held by that person.

MOWED GRASS HAZARDS

Readers who operate from grass airfields should note the following two occurrences which highlight some of the problems caused when the grass is cut but the clippings are not removed.

The Piper *Arrow* taxied from the parking area to the holding point across an area of newly mown grass. The take-off proceeded normally and about 30 minutes into the flight, the cabin began to fill with smoke. The pilot thought it was oil smoke and closed the fresh air vent with no effect. Breathing became more difficult so the pilot elected to shut the engine down and make a forced landing. The low-time pilot, flying this relatively complex aircraft, made an exemplary forced landing, with no damage done to the aircraft. Investigation found a large quantity of grass in the defrost/heater heat exchanger box which had caught fire because of the heat from the exhaust pipe.

A Cessna F150 was fitted with wheel pants and the pilot reported that it was taking an increasingly longer distance on each take-off to become airborne. When the wheel pants were removed, it was discovered that they were very densely packed with grass with little or no clearance between the densely packed grass and the tire. Cleaning of the wheel pants and removal of the grass cured the problem and the aircraft regained its previous spritely performance. Wheel pants are also efficient collectors of mud and ice.

Editor's Note: from the United Kingdom's July 1991 General Aviation Safety Information Leaflet.

A FORMER ADMINISTRATOR'S THOUGHTS ON GENERAL AVIATION

This past December Acting Secretary of Transportation James Busey met a final time with the FAA management team at FAA's Center for Management Development (CMD) in Palm Coast, FL.

Secretary Busey addressed some 500 students and faculty at CMD and passed on a few parting words of advice and encouragement to FAA's newest managers. His usual candid self, Busey opened the floor for questions and received one about what the FAA can do to ameliorate the slump in general aviation aircraft production. Busey replied, "This is a tough problem for us to deal with, and the key reason for this 'slump' is the high cost of product liability insurance." Busey added that FAA is working with Congress on legislation that will limit product liability for aircraft manufacturers. "In the meantime," he said, "we need to work through our safety and education efforts to make pilots safer."

When pressed by a questioner if general aviation was all but dead in the United States, Busey emphatically replied, "Understand this: General aviation is not dead; it is not being choked out of the sky. There will always be plenty of airspace for general aviation usage. We have to and will continue to support to the best of our ability the general aviation community."

Secretary Busey was FAA Administrator for two and one-half years from June 1989 to December 1991 and was recognized during his tenure as a champion of general aviation.

HEADING SOUTH IN THE SPRING?

Spring has sprung and the fancy of young and old aviators alike turn to the Sun 'N' Fun Fly-in, EAA's "winter" event in Lakeland, FL. This year's Sun 'N' Fun is being held April 5-11, and as usual the pilots of any mechanical birds reversing the natural order and migrating south for the ever-popular event need to avail themselves of some very important information.

We strongly urge that all pilots planning a trip to Lakeland for the fly-in obtain and use in their flight planning the NOTAM for Sun 'N' Fun arrival/departure procedures. The Sun 'N' Fun NOTAM, issued in late February, and contains important information for all kinds of aircraft operations, VFR or IFR, radio-equipped or without, etc. Advanced notice and approval may be required for some operations.

The Sun 'N' Fun NOTAM, with detailed descriptions and depictions of arrival/departure procedures, is available from your local FAA office or Flight Service Station.

SCUBA 'N FLYING

The FAA has changed both its recommended waiting time between SCUBA (self-contained underwater breathing apparatus) diving and flying and its definition of "altitude" as it relates to flying as a pilot or passenger after SCUBA diving. The change is in the most recent issue of the *Airman's Information Manual* in Chapter 8, titled, Medical Facts for Pilots. The changed section, Paragraph 8-2(d), Decompression Sickness After SCUBA Diving, is consistent with the FAA's 1990 Physiological Training Manual and the latest information from the Divers Alert Network (DAN) at Duke University, Durham, NC.

The FAA recommended time interval between diving and flying up to a flight altitude of 8,000 feet MSL has been increased from four hours to a minimum of 12 hours for non-decompression dives and 24 hours for decompression dives. The recommended time for actual flights above 8,000 feet MSL is 24 hours regardless of type of dive. The changes, made to reduce the risk of the "bends," also include a change from using "cabin pressure" altitude to actual flight altitude.

The change in the definition of altitude used to compute the waiting period reduces the risk of an aircraft decompression problem jeopardizing the health of a diver returning home right after a last-minute dive. The old definition permitted flight after a four hour surface interval period in pressurized aircraft with a cabin pressure altitude of up to 8,000 feet MSL while the aircraft was actually flying at 30,000 or 40,000 feet MSL. If the aircraft lost pressurization, the diver could suddenly find him or herself at a pressure altitude of 30,000 or 40,000 feet. This rapid reduction in pressure after such a short surface period could "bend" the diver. The new recommendations are designed to reduce that risk by keeping the diver below a "safe" altitude.

Divers, especially diver/pilots, need to remember that each dive and diver is different. Although no rule-of-thumb can provide complete safety, divers should remember it is safer to wait longer than the minimums rather then reducing the minimum recommended waiting period. Divers should also consider the risks of sudden loss of aircraft pressurization when planning on going above the recommended 8,000 feet MSL actual flight altitude with less than the recommended 24 hour delay.

Editor's Note: FAA Aviation News *would like to thank Peter B. Bennett, PhD.,D.Sc., Executive Director, Divers Alert Network, Durham, NC and Dr. Andrew F. Horne of the FAA for their assistance with this article.*

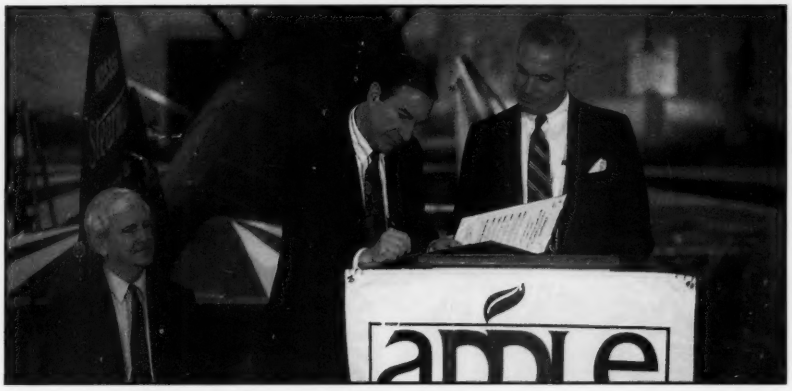

Photo courtesy of AOPA

AOPA President Phil Boyer (left) and Acting FAA Administrator Barry Harris sign the FAA/AOPA Aviation Education Partnership. AOPA's "Fly-A-Teacher" Program follows the same lines as its successful "Fly-A-Reporter" and "Fly-A-Controller" programs.

AN AVIATION APPLE FOR A TEACHER OR MOTIVATING STUDENTS THROUGH AVIATION

An apple is a tasty fruit that keeps away physicians if you eat one a day. It is also a popular brand of personal computer. What does an apple have to do with aviation? Try America's Pilots Participating in Local Education—APPLE. APPLE is the latest effort by the Aircraft Owners and Pilots Association (AOPA) to bring the message of aviation to the uninitiated.

Acting FAA Administrator Barry L. Harris recently signed an Aviation Education Partnership between the FAA and AOPA; APPLE is but a small part of this partnership. FAA has more than 50 aviation education resource centers across the country as well as youth programs and other partnerships with industry and the education community. Administrator Harris said, "FAA . . . [is] dedicated to enhancing the aviation education of America's young people, teachers, and others through programs and resource materials at local and national levels."

Under APPLE local pilots can serve as resources to classroom teachers to help motivate all students and dramatize the use of math and science in real life applications. Along with the FAA, AOPA is encouraging its members to provide their aviation expertise, their personal stories of what aviation means to them, and to provide familiarization flights to classroom teachers. This "Fly A Teacher" program follows on AOPA's successful "Fly A Reporter" and "Fly A Controller" programs.

For more information on APPLE, contact Janette Prince of AOPA at (301) 695-2155. For additional information on FAA's aviation education programs and resources, contact FAA's Office of Public Affairs, Aviation Education Branch, APA-120; (202) 267-3476.

AUXILIARY FLIGHT SERVICE STATIONS

Pilots at 31 airports around the country will soon be able to turn to Auxiliary Flight Service Stations for local airport information and other services.

FAA, under its "Auxiliary Flight Service Station Plan," will add 26 permanent and five seasonal auxiliary FSS' to supplement its planned 61 automated FSS'. Former Administrator James Busey said, "These facilities will provide the supplemental services required by the enacting legislation."

Beginning in August 1992 the auxiliary FSS' will offer local airport information, take weather observations, provide pertinent weather advisory alerts, relay air traffic control clearances, respond to requests for search and rescue assistance at the local airport, and monitor local airport navigational aids.

The 26 permanent auxiliary sites are:

Barrow, AK	Dillingham, AK	Kotzebue, AK
Muscle Shoals, AL	Ukiah, CA	London, KY
Bozeman, MT	Rocky Mount, NC	DuBois, PA
Cold Bay, AK	Homer, AK	Nome, AK
Arcata, CA	Crestview, FL	Salisbury, MD
Hickory, NC	Redmond, OR	Pierre, SD
Deadhorse, AK	Ketchikan, AK	Sitka, AK
Marysville, CA	Bowling Green, KY	Marquette, MI
New Bern, NC	Bradford, PA	

The five seasonal sites are all in Alaska:

Iliamna
Palmer
McGrath
Talkeetna
Northway

THE KAMIKAZE KANARIES OF OPERATION REVENGE

Illustration by Sean Hill

by Cdr. Mark W. Danielson

Spring brings the migration of millions of birds. Our fine-feathered friends are beautiful to behold as they follow their instincts north. Unlike us, they cannot opt to deviate off course to avoid us. We have to watch out for them and not just in one's or two's but in flocks of hundreds. Birdstrikes have taken the toll of air carrier and general aviation aircraft alike and the frequency of strikes seems to be on the increase. The following is an amusing possible reason, courtesy of the U.S. Navy.

—Editor

The birds had flown south to Rio for their annual fly-in. The main topic they discussed was the constantly increasing mortality rate among their feathered friends because of airplane strikes. The following statement by the speaker, Horatio Hornblower, has been reprinted here so that all who couldn't attend the meeting may be informed as to the gallant efforts which are currently underway.

Our intelligence office intercepts message traffic from the U.S. military detailing the carnage taking place in the skies. In one case, a single C-130 massacred more than 200 birds! We are talking about three entire generations of the Skybird family.

Our front office meticulously maintains statistics which show that the mortality rate has increased *more than 200,000 percent in the past 40 years.* This pattern cannot be tolerated any longer. It is time for action!

We have studied the tactics used by the underdog in previous wars. Kamikaze pilots provided a stunning example, delivering deadly blows to their adversaries. We also have experimented with sacrificial birds. In the words of Jonathan Livingston Spock, our first kamikaze volunteer, "the needs of the flock outweigh the needs of the one."

Jonathan managed to select a prime target—a B-1 bomber—and knocked this marvel of technology out of the sky. He was posthumously awarded the Order of the Royal Condor medal for his extreme valor.

This single attack generated an enormous amount of military message traffic and kept the skies clear of aircraft for weeks. We applaud his efforts in furthering our cause to make the skies permanently free of these polluting beasts.

We have had a select group of volunteers step forward since Jonathan's flight to form what we call "Operation Revenge." These proud birds will bring us glory as we watch the pitiful aircraft fall. The aircraft tactics on birdstrike prevention and awareness have been intercepted and carefully reviewed. We have responded with new tactics of our own.

We have learned that we must not be predictable. Pilots will try to climb and turn to avoid confusion, thus saving their precious metal. We must climb and turn with them. We must fly more at night and become stealth fighters. It is easy to pick out the airplanes with all their pretty lights but they can't see us until it is too late.

We must ensure that we put at least one bird in each intake to achieve our goals. Wing damage does little except waste our valuable efforts. The best attack against propeller-driven aircraft is to go through the windshields and take out the pilots. Our studies have shown that propellers suffer little damage while fragile, arrogant pilots cannot tolerate much physical abuse. In fact, they are not even very good at identifying targets. It seems that no matter what kind of bird they see coming at them, they always cry, "Duck!" just before impact. It's amazing that these creatures can even find their way around an airport.

The final tactic we have learned is to attack while the aircraft are low and slow. Our studies show that when planes are in this configuration, their pilots are preoccupied with looking inside the cockpit and are very susceptible to receiving a fatal blow from one of our volunteers. It is further revealed that many pilots do not respond well to aircraft difficulties resulting from structural damage when close to the ground, which increases the chance of success.

We birds will not disappear. We are the ones who have enjoyed the skies since the beginning of time. Now is the time for action! I have a dream that all birds, no matter what flock they are from, can one day fly without fear of death or injury. I have a dream that we may once again breathe clean air and that our annual fly-in can focus more on social events than the real issues that threaten us every day.

We must continue to fight. The odds are in our favor. Let's not forget those who have died for us. ■

Editor's Note: Cdr. Danielson is the Safety Officer for the Naval Air Station Dallas. The article is reprinted from the April 1991 issue of Approach, *a monthly magazine published by the U.S. Navy's Naval Safety Center.*

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***DO NOT DELAY* – CRITICAL TO FLYING SAFELY!**

Photo by David Smith

The foot-launched hang glider of the 1960's reflected the experiments of aviation pioneers from a century earlier. Ingenuity added the snowmobile engine, and the combination was the harbinger of today's quasi-airplane—the powered ultralight vehicle. Photo courtesy of USHGA.